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**THE
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USER**

DECEMBER 1992 Vol.10 No.10 £2.95

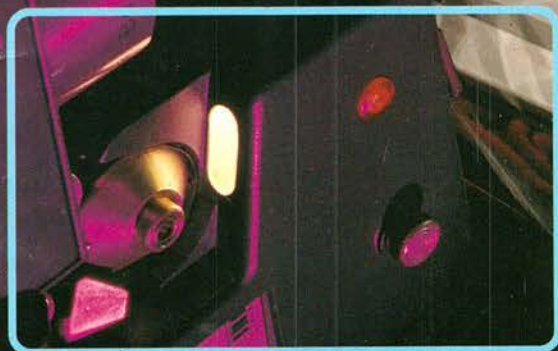
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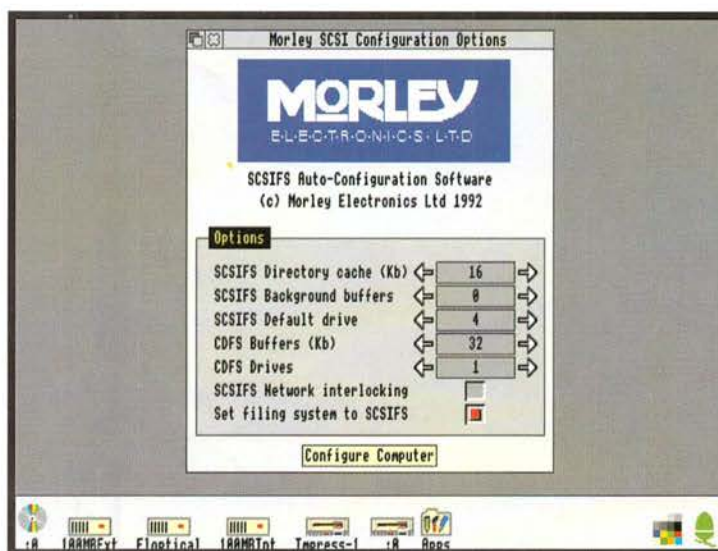
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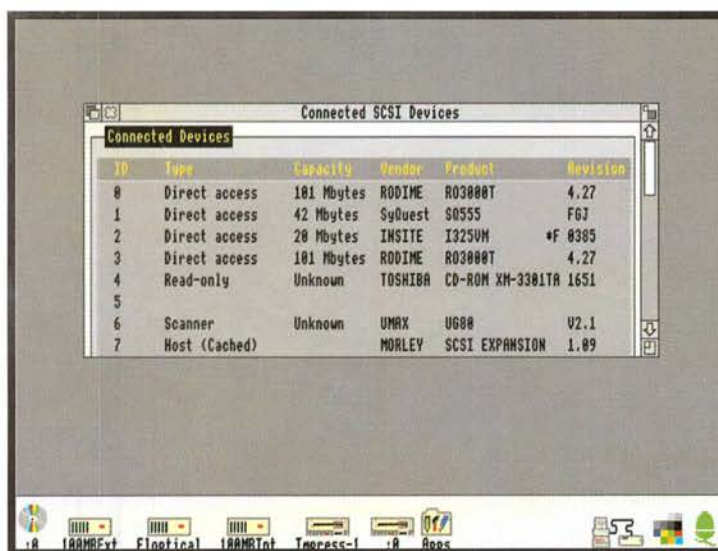
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As a dedicated Acorn computer user you will understand better than anyone the restrictions you have faced in the past when trying to upgrade your machine.

We sympathise wholeheartedly and at the same time offer you a solution. Its name is SCSI, in full 'Small Computer Systems Interface'. Nothing new in that you might say, but you would be wrong. Our interface, instead of just being able to connect to a few well chosen devices, is capable of controlling any seven individual SCSI devices all at the same time. As long as they are ANSI (American National Standards Institute) compliant devices we guarantee that they will work with our card.

We designed our interface and engineered our software, to be fully compliant with ANSI standard X3.131-1986. This is the definitive standard by which all SCSI hardware and software must be measured. So if you are thinking of buying a SCSI setup ask whether it meets the above criteria. You will probably find very few manufacturers who will give you a straight answer.

The interface card can be used on any RISC-OS based machine fitted with a standard expansion slot. This means that when you upgrade your machine your SCSI setup can go with you.

Our installation software makes setting up your system a piece of cake. Instead of messing around with *commands once your interface card and device are connected you simply run a single piece of software, give a quick Ctrl-Reset and off you go. We also include one or two rather useful utilities which give detailed information about the devices attached to your system and the speed at which they operate, together with a very comprehensive manual.

It all adds up to a complete system that has the future built into it. You can buy our interface and devices either directly from ourselves or ask for it by name from any good Acorn dealer.

Minimum system requirements

- ☐ Acorn ARM based computer
- ☐ Acorn RISC OS 2 or 3
- ☐ 1MB RAM
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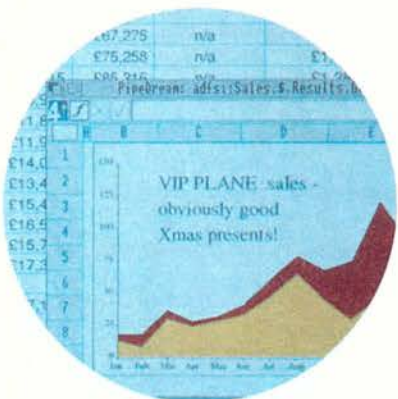
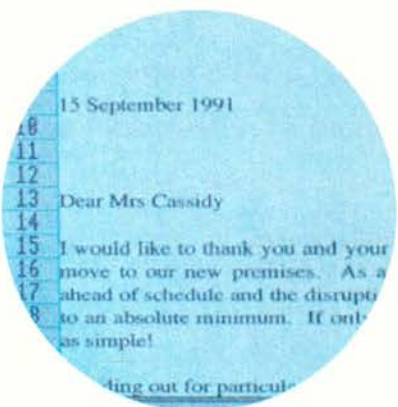
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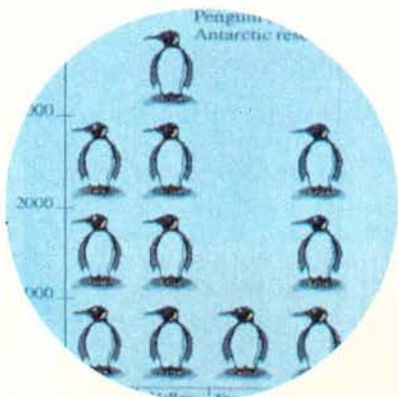
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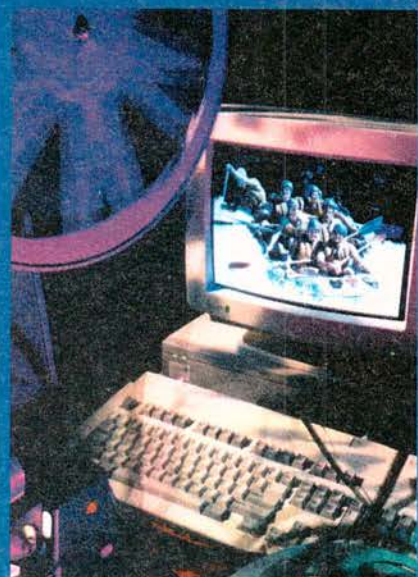
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7m	2265	7264	48	SH	13	17
9m	2134	8345	45	WH	11	13
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1m	2418	7875	43	CH	14	1
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4m	2470	7746	41	CH	1	



COVER FEATURE



CD-Rom round-up

The Data Age is upon us and you can find out which CD-Roms are available for your Acorn machine. We have the most up-to-date information on the latest releases which provide gigabytes of information and hours of pleasure. Check it out on Page 25.

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● Fun School 4, among other things, tests a basic general knowledge

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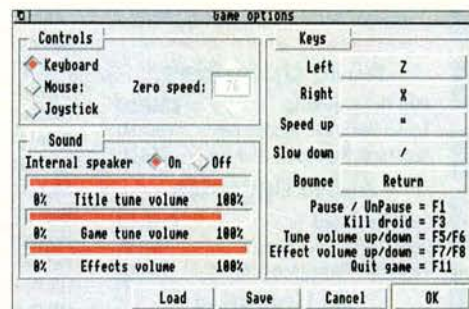
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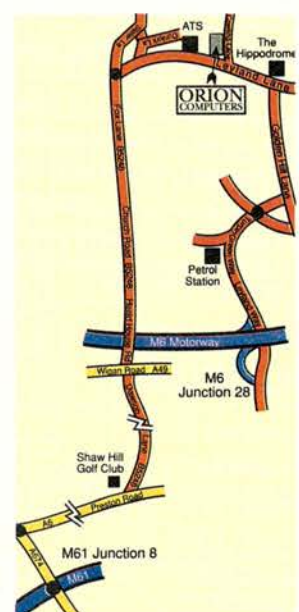
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Bug Hunter / MoonDash Minerva £10
Bug Hunter in Space Minerva £10
Business Accounts Minerva £298

CableNews Lingenuity £136+

Cadet Minerva £139

Cartoon Collection Micro Studio £16

Cartoon Line Eterna £17

Casino Minerva £11

Castle of Dreams Storm £17

Cataclysm Fourth Dim £19

Caverns Minerva £10

C: A Dabhand Guide Dabs V0 £14

- with disc £22

C Development System RISC £77

Chameleon (new version) 4maton £34

Charts & Graphs Computer Tutorial £17

ChartWell RISC £25

Chatter 4maton £35+

Chequered Flag CIS £17

- Extra Circuits CIS £16

Chess 3D Micro Power £21

Children's Graphics Micro Studio £16

Chocks Away Fourth Dim £21

- Compendium Fourth Dim £32

- Extra Missions Fourth Dim £15

Chopper Force Fourth Dim £24

Chuck Rock Krisalis £19

Clip Art Graphics Factory £19

- Vol 1 (General), sprites £19

- Vol 2 (General) / Vol 3 (Animals) / Vol 4 (Sport) / Vol 5 (Characters) each £25

Clip Art Set 1, drawfiles Midnight £29

Clip Art Set 2, drawfiles Midnight £29

Coffee, age 9+ Storm £27

Colour Screen»Mac Human £90

- Arc/Mac Cable Human £24

ColourSep ICS £25

- site licence £60

Compression CC £35

Concept Designer Longman £22

Conqueror Superior £17

Control Logo Longman £22

Converta-Key Triple R £15

Cops Alpine £15

Corruption Magnetic £21

Craftshop 1 4maton £27

Craftshop 2 4maton £27

Creator Alpine £31

Crisis CIS £12

Cross-32 Meta-Assembler Baildon £175

- manual for evaluation Baildon V0 £15

Curves Software Pack Topologika £39

Cyber Chess Fourth Dim £38

DataGraph Topologika £29

DataVision Silicon £79

DataWord Triple R £15

DBEdit 4maton £28+

Decorated Alphabet, sprites Micro Studio £17

Designer V.3 TechSoft £193

Designer Intro TechSoft £75

Designer's Graphics, draw/sprites Micro Studio £16

DeskEdit RISC £21

Desktop Assembler Release 2 Acorn £119

Desktop C Release 4 Acorn £185

Desktop Folio ESM £64

- Themes: Christmas, Editors, Maths, Space, World War II each £22

Desktop Office v2 Minerva £95

Desktop Publisher Acorn £108

- extra copy of manual Acorn V0 £10

Desktop Publishing on the Archimedes Sigma V0 £13

Desktop Thesaurus RISC £18

Detect-a-Pet, age 5-11 ESM £49

DFS Reader RISC £9

Disc Tree Mitre £38

DrawBender ICS £15

- site licence £50

Draw Print & Plot Oak £37

Dreamwave EMR £34

Drop Ship Fourth Dim £16

DTP Graphics 1 Mono, sprites Micro Studio £15

DTP Graphics 2 Colour Micro Studio £17

DTP Graphics combined Micro Studio £25

DTP Seeds 4maton V0 £8

DTP Theme Packs, age 5-16 ESM £35

- Christmas £29

- Editor's £29

- Maths £29

Dungeon Fourth Dim £27+

Easiword Plus Minerva £54

EasiWriter 2 Icon £115

- Dictionaries: Danish / French / German / Italian / Norwegian / Spanish / Swedish / Welsh each £30

Einstein Ace £106

Elite Hybrid £33

EluciData (OCR) Irlam £155

- bought with Irlam Scanner £79

Enter the Realm Fourth Dim £18

Equisor CC £38

Ethnic Borders 4maton £10

E-Type Compendium Fourth Dim £18

Euclid Ace £50

Eureka Longman £109

ExcellonDrill Silicon £63

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Family Favourites (not OS 3) Minerva £11

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Fine Racer Eterna £14

Fireball II Xtra CIS £12

First Impression Word Processing V0 £28

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Flight Sim Toolkit Simis £31

Flying Start II Mitre £86

Fantasy ICS £25

Fantasy / DrawBender / Placard site licence £80

FontFX Data Store £9

- site licence £70

Font Pack - Newhall, Starter, Symbol each pack Acorn £35

Font Pack 1 - Paladin, Swiss B, Symbol B, Vogue RISC £47

Font Pack - Avant Garde, Bookman CC £26

Pembroke - each pack CC £26

Fortran 77 Release 2 Acorn £75

Freddy's Folly (not OS 3) Minerva £8

Freddy Teddy Topologika £18

- Balloons & The Zoo Topologika £27

- The Playground Topologika £27

- The Puddle & The Wardrobe Topologika £27

Freddy Teddy's Adventure Topologika £17

Fun School 2 Database £15

- age -6, age 6-8, age 8+ each £15

Fun School 3 Database £18

- age -5, age 5-7, age 8+ each £18

Fun School 4 Database £20

- age -5, age 5-7, age 8+ each £20

Galactic Dan Fourth Dim £20+

Gammaplot Minerva £36

Gate Array Design System Silicon £114

Genesis I Oak £40

Genesis II Oak £99

Genesis Plus Oak £69

GerberPlot Silicon £63

Giant Killer, age 10+ Topologika £29

Giant Killer Support Disc Topologika £19

Gods Krisalis £19

Good Impression Word Processing V0 £27

GraphBox Minerva £55

GraphBox Professional Minerva £105

Graphic Writer Clares £24

Greetings Graphics, draw/sprites Micro Studio £16

Gribbly's Day Out Coin-Age £21

GridIT Widgit £30

Grievous Bodily 'ARM Fourth Dim £18

Hard Disc Companion release 2 RISC £45

Hearsay II RISC £70

History Costume, sprites Micro Studio £16

Holed Out Compendium Fourth Dim £21

Home Accounts Minerva £34

Hostages Superior £14

HotLink Presenter Lingenuity £25

House of Numbers Chalksoft £20

Hoverbot (not OS 3) Minerva £8

Hyperbook Electronic Library Longman £109

(including Reader) £47

Hyperbook Reader Longman £47

Ibix the Viking (not OS 3) Minerva £11

IPC SWI Baildon £15

- bought with Oddule £5

Illusionist Clares £76

Illustrators' Graphics, draw/sprites Micro Studio £16

Image Animator Iota £68

Image OCR Iota £POA

Image Outliner Iota £72

Imagery Palette Studio £75+

Imagine Topologika £39

Impact! Circle £47+

Impact! Demo Circle £2+

Impression CC £123

- network version £650

- site licence £545

- extra hardware key for sites only £15

- extra manual for sites only V0 £8

Impression BorderS CC £19

Impression Business Supplement CC £39

Impression Junior CC £59

- site licence £435

- extra manual for sites only V0 £7

Pendown Plus	Longman	£68	- PMS PostScript	£422	Wimp Game	Fourth Dim	£16
Personal Accounts	Apricot	£29	ScreenPlay	Widgit	WindowEd	Armen	£29*
Pesky Muskrats	Coin-Age	£19	ScreenTurtle	Topologika	Wonderland	Virgin	£24
Picture Book	Triple R	£15	Search and Rescue, age 9+	Storm	Words and Pictures	Chalksoft	£17
PinPoint	Longman	£69	Seashore Guide, drawfiles	Micro Studio	WordWorks	CC	£38
- site licence		£390	Sesame Street	Electric Crayon	World Championship Boxing Manager	Krisalis	£20
PipeDream 3	Colton	£118	- Letters for You			Micro Studio	£23
PipeDream 4	Colton	£148	- Numbers Count			ESM	£42
PipeDriver Dot 1	ICS	£10	SFXM	CIS	World Map Study, age 7-16	Leading Edge	£16
Pipe Mania	Empire	£18	ShapeFX	Data Store	Worldscape	Micro Studio	£16
PIPP1 Primary Integrated Project Planner	CIS	£36	ShareHolder	Silicon	World Wildlife, sprites	Oak	£14
			ShareHolder Professional	CC	Worra Battle	Oak	£83
PIPP2 Professional Integrated			ShowPage	CC	WorraCAD		
Project Planner			Shylock Gnomes, age 10-15	Selective			
- 5-14 Programme	CIS	£85	Sim City	Krisalis			
- Middle	CIS	£52	SkyHunter	Longman			
- Primary	CIS	£44	smArt	4maton			
- Primary: Homes	CIS	£12	smArt Aliens, Animals, Dinosaurs, Egypt,				
- Resource Centre	CIS	£129	Faces*, Fantasy, Fashion, Fiddles &				
- Secondary	CIS	£69	Drums, Heraldry, Homes*, Leisure*, Look				
Pirate, age 8-14	Chalksoft	£19	Smart, Smartoons, Trees and Gardens				
Placard	ICS	£10	*Please specify English, French, German,				
- site licence		£30	Spanish or Welsh - each 4maton				
Plague Planet	Alpine	£13	smArtFiler	4maton			
Podd	ESM	£25	smArt Modern Languages	4maton			
Pozone	Eterna	£14	Snippet (new version)	4maton			
Polyminoes	Topologika	£29	Soapbox	Xavier			
Populous	Krisalis	£19	SolidCAD	Silicon			
Poster	4maton	£75	SolidsRender	Silicon			
Powerband	Fourth Dim	£21	SolidTools	Silicon			
Prehistoric Animals, sprites	Micro Studio	£16	Spark	David Pilling			
Premier	Circle	£71	SparkFS	David Pilling			
- DataBase	Circle	£25	Sparkle	Morley			
- WordProc	Circle	£25	Special	ICS			
Presenter GTI	Lingenuity	£62	- site licence				
PrimeArt	Minerva	£49	Speech!	Superior			
PrimeWord	Minerva	£55	Spelling week-by-week	Chalksoft			
Printer Driver, RISC OS			Splice	Ace			
- BJ10ex TurboDriver + Cable	CC	£42	Sporting Triangles	CDS			
- BJC800 TurboDriver + Cable	CC	£89*	Sports Day	Selective			
- CA (Canon PW1080A)	Ace	£15	Square Route	Computer Eyes			
- CC (ColourCel)	Ace	£15	Stock Management	Minerva			
- Deskjet 500C	RISC	£15	StockPack	Topologika			
- Epson, Star colour	RISC	£15	Studio24Plus Version 2, age 11+	EMR			
- HP (HP Colour)	Ace	£15	Studio24Plus Version 3, age 12+	EMR			
- JX (Epson, Star and Citizen colour)			SuperDump	Silicon			
			Superior Golf	Superior			
			SuperPlot	Silicon			
Pro Artisan	Clares	£70	Supersounds	CIS			
ProCAD	Minerva	£POA	Supersounds 2	CIS			
Programming in ANSI Standard C			Swiv	Krisalis			
on the Archimedes	Sigma	vo £17	System Delta Plus II	Minerva			
Prophet (requires 2 Mb)	Apricot	£134	- Reference Guide	Minerva			
Prophet Demo	Apricot	£10					
Protext	Amor	£114	TABS	ExpLAN			
Provocator	Computer Tutorial	£15	Tactic	Eterna			
Puncman 1 and 2	Chalksoft	£16	Talisman	Minerva			
Puncman 3 and 4	Chalksoft	£16	Talking Pictures	Wyddia			
Puncman 5 to 7	Chalksoft	£17	Target Maths	Triple R			
Punctuate	Xavier	£31	TechWriter	Icon			
Punctuatel	Topologika	£19	Thinklink	Xavier			
Purchase Ledger	Minerva	£78	Thundermonk	Minerva			
			Timetabler	Minerva			
Quest for Gold	Krisalis	£19	Time Traveller	ESM			
QuickKey	ICS	£15	- Britain Since the 1930s				
- site licence		£45	- The Victorians	EPOA			
Real McCoy 2	Fourth Dim	£24	TimeWatch	Mitre			
Real McCoy 3	Fourth Dim	£24*	TinyLogo/Draw	Topologika			
Redshift	Minerva	£11	TinyPuzzle	Topologika			
Render Bender I	Clares	£55	Titler	Clares			
Render Bender II	Clares	£85	Toolkit Plus	Clares			
Reporter	Minerva	£29	Tools Graphics, drawfiles	Micro Studio			
Repton 3	Superior	£14	Top Banana	Hex			
Revelation 1	Longman	£54	Touch Type	Iota			
Revelation 2	Longman	£95	Tower of Babel	Cygnus			
- CD Rom	Longman	£123	Trace	David Pilling			
Reversals	Chalksoft	£17	Tracer	Midnight			
Rhapsody 2	Clares	£45	Tracker	Leading Edge			
RiscBASIC Compiler	Silicon	£79	Transport, drawfiles	Micro Studio			
RiscForth Compiler	Silicon	£79	Trivial Pursuit	Domark			
Risc OS Companion Vol 1	Oak	vo £49	Turbo Type	CIS			
Risc OS Extras 1992	Acorn	£9	Tween	Ace			
Risc OS Programmer's			Twin	Acorn			
Reference Manual	Acorn	vo £79	Twin World	UBI Soft			
Risc OS Style Guide	Acorn	vo £11	TWO (Task and Window Organiser)	ICS			
RoboLogo	Silicon	£39	- site licence				
Rockfall	Eterna	£16	TypeStudio	RISC			
Round the World Yacht Race	Storm	£29	Utility Disc 1	Data Store			
			Utility Disc 2	Data Store			
Sales Ledger	Minerva	£78	Utility Disc 3	Data Store			
Saloon Cars	Fourth Dim	£18	Utility Collection	Data Store			
Saloon Cars Deluxe	Fourth Dim	£27	Vector	4maton			
- Deluxe Extra Courses	Fourth Dim	£16	View-Mac 3	Human			
Schema	Clares	£89	- Arc/Mac Cable	Human			
School Administrator	Minerva	£65	Vox Box	Clares			
Science, drawfiles	Micro Studio	£25					
Score Draw	Clares	£45	Waterloo	Turcan			
Scorewriter	EMR		Whale Adventure	Topologika			
- PMS Dot matrix, Version 1		£127	Whale Facts	Topologika			
- PMS Dot matrix, Version 2		£147	Whale Games	Topologika			



HARDWARE



A3010 1MB FD Family Solution Acorn £420
Family Solution + ideA'92
 Special price when you buy an A3010 with an ICS internal hard disc upgrade:
 - Family Solution + 20 Mb hard disc £599
 - Family Solution + 60 Mb hard disc £699
 - Family Solution + 80 Mb hard disc £759
 - Family Solution + 120 Mb hard disc £859

A3010 2MB FD Learning Curve with Monitor
 - as above + JP150 Printer £675
 A3020 2MB FD Acorn £889
 A3020 2MB HD60 Acorn £749
 A4 2MB FD Acorn £899
 A4 4MB HD60 with free PC Emulator 1.8 Acorn £1395
 A4 4MB HD80 Acorn £1695
 A4 4MB HD120 Acorn £1795
 A4 Extra Battery Pack Acorn £1895
 A4 Shoulder Bag Acorn £50
 A4000 2MB HD80 Acorn £35
 - as above + Home Office £945
 A5000 2MB HD80 Multiscan Acorn £995
 - as above + Learning Curve £1395
 Pocket Book Acorn £1455
 Acorn £212

MEMORY...

Fitting extra unless otherwise stated
 † Fitting easy ‡ Fitting needs expertise
 A3000 2 Mb Non-upgradable † IFEL £55
 A3000 2 Mb Upgradable † IFEL £63
 A3000 4 Mb † Atomwide/IFEL £140
 A3010 1-2 Mb £49
 A310 2 Mb Upgradable soldered † IFEL £99
 - as above + MEMC1a £149
 - as above + MEMC1a + fitting £200
 A310 4 Mb soldered + MEMC1a † IFEL £225
 - as above + fitting £277
 - as above + fitting + OS3 carriers £298
 A5000 2-4 Mb Non-upgradable † Atomwide £85
 A5000 2-4 Mb Upgradable † IFEL £99*
 A5000 4-8 Mb including fitting Atomwide £500
 A5000 4-8 Mb including fitting Atomwide £391
 A540 4 Mb † Atomwide £238

PRINTERS...

ArcLaser 300-6 Calligraph £895
 ArcServer 300-8 Calligraph £985
 Bubble Jet BJ-10ex Canon £187
 Bubble Jet BJ-10ex + TurboDriver Canon/CC £221*
 Bubble Jet BJ-20 Canon £255
 Bubble Jet BJ-300 Canon £299
 Bubble Jet BJ-330 Canon £405
 Bubble Jet BJC-800 + TurboDriver Canon/CC £1499
 DeskJet 500C Hewlett-Packard £429
 Laser Direct HiRes4 with 50-sheet tray CC £899
 - 250-sheet Paper Cassette £99
 Laser Direct HiRes8 CC £1280
 Laser Direct LBP-4 Card CC £325
 LBP-4 Canon £659
 Refill toner cartridge for Canon EPS £50
 New toner cartridge for Canon LBP-4 £59

MISCELLANEOUS...

386C PC Expansion Card Aleph One £463
 - 1 Mb £463
 - 4 Mb £579
 4-slot 4-layer Backplane IFEL £59
 9060S Monitor Eizo £450
 A300/400 Fan kit ICS £15
 A310 RISC OS Carrier Board † IFEL £21
 A5000 Fitting Kit for second hard disc ICS £15
 ArcKey Function KeyStrip Holder ICS vo £3
 - pack of 4 vo £10
 ARM3 † IFEL £175
 Dongle Dangle with screw fittings ICS £6
 Fan filters (pack of 10) (not A5000) ICS £6
 FaxPack CC £289
 Floppy Discs, 10 x 3 1/2" High Density £10
 HiPoint Mouse for A4 Genius £49
 Micro Mouse Clares £26
 Monitor Stand for A3000 ICS £21
 Podule Case for A3000 ICS £16
 RISC OS 3 Upgrade Acorn £41
 - Bulk package Acorn £335
 - A5000 Acorn £17
 Seal 'n Type spill-proof Keyboard Covers
 - Archimedes / A5000 Kador £14
 - A3000 Kador £14
 TouchWindow Linds £234
 Whisper Fan Quietener ICS £15
 (for A300/A400 series only)

SCANNERS, DIGITISERS...

ArcScanner including Epson GT-4000 Clares £1660
 Colour Converter Linds £145
 FaxScan SpaceTech £94
 Hawk V9 Wild Vision £199
 - A3000 version Wild Vision £278
 iImage (Sharp JX-100) Irlam £490
 - for A5000 £589
 - for other computers £383
 Image Scanner Iota £148
 - Colour upgrade Iota £98
 - Fast parallel card Iota £91
 i-Scan 200 Irlam £539
 i-Scan 400 Irlam £589
 Pineapple Colour Video Digitiser Pineapple £195
 - A3000 boxed Pineapple £230
 ProlImage (Epson GT6000) Irlam £989
 - for A5000 £1089
 - for other computers £277
 Scan-Light A4 CC £360
 - with Sheet Feeder CC £190
 Scan-Light 256 CC £190
 - A3000 internal CC £565
 Scan-Light Professional CC £699
 - as above + SCSI interface CC £699
 SnapShot Colour Video Digitiser Lingenuity £195
 - A3000 version Lingenuity £275
 Spectra RISC £545
 - A3000 Internal RISC £545
 - A3000 External RISC £565
 Vision Digitiser HCCS £47
 - Mono £79
 - Colour £62
 - A3000 External Mono £92
 - A3000 External Colour £49
 - A3000 Internal Mono £79

PC PRODUCTS...

AnDi Oddule Baildon £30
 I2C Adaptor (needed unless you already have an I2C socket) Baildon £10
 I2C SWI (enhanced IIC-Control) Baildon £15
 - bought with Oddule £5

SEE US AT THE BETT SHOW - OLYMPIA - 20TH-23RD JANUARY



AUTHORISED ACORN DEALER

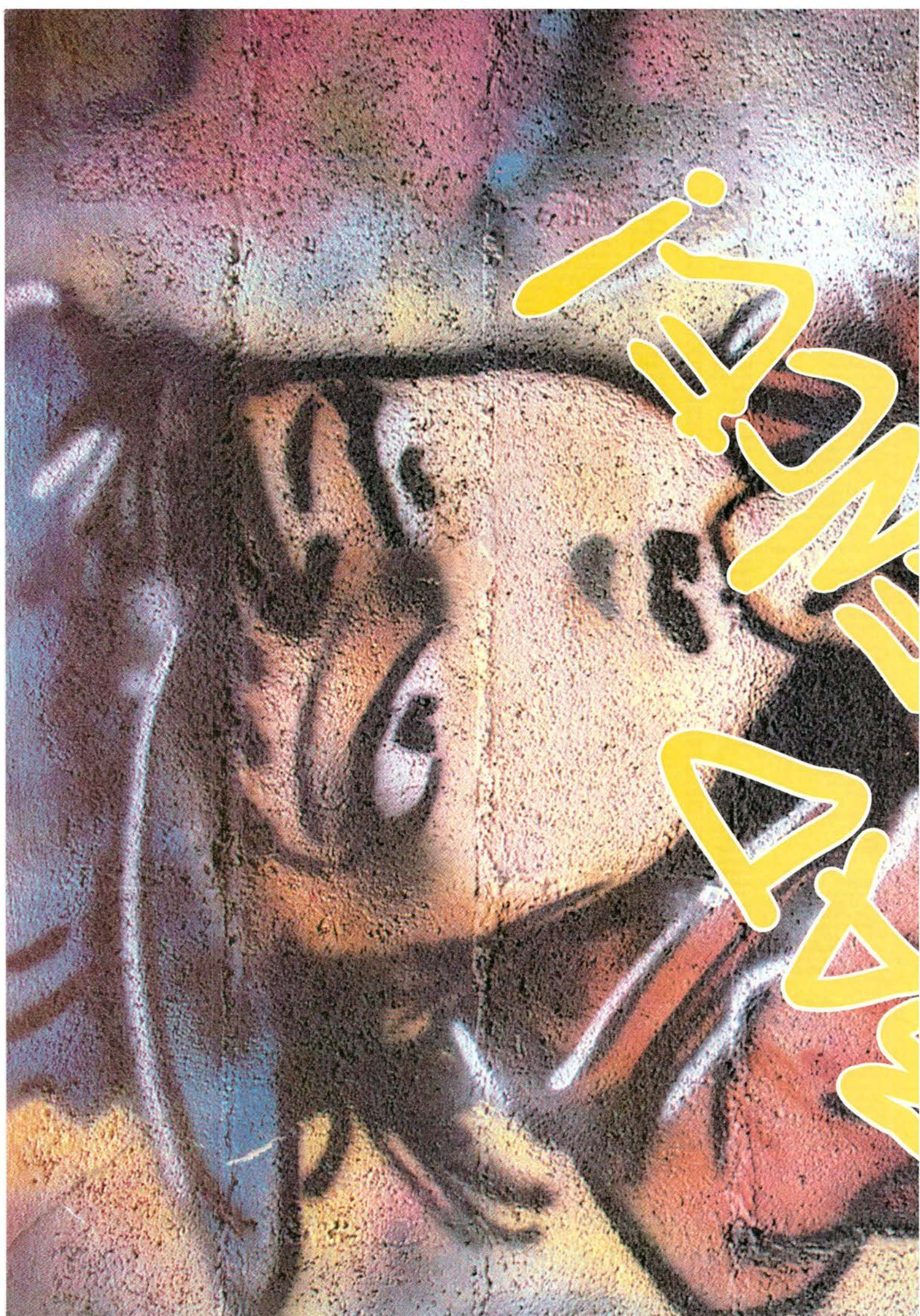
ICS (Ian Copestake Limited)

Dept AC3, 1 Kington road, West Kirby, WIRRAL, Merseyside, L48 5ET

Tel: 051-625 1006 Fax: 051-625 1007

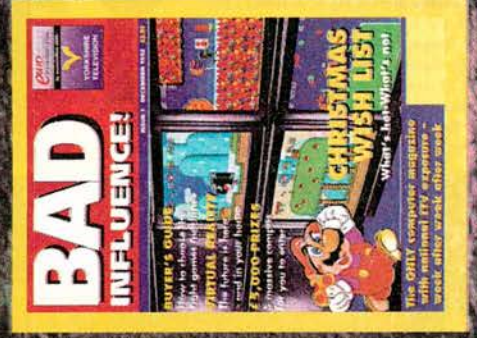
E&OE D61 920C22

LICENSED CREDIT BROKER



ADULT

HITS THE STREETS ON
NOVEMBER 19TH



Vector

the
drawing
package

We're not the only ones who are
enthusiastic about our drawing package!

£85

This is a superb package which anyone who is at all serious about drawing or producing graphics on a computer should buy immediately. Steve Bruntlett • Micro User • July 1992

I can only congratulate 4Mation and Jonathan Marten for producing such a powerful drawing package. Vector is a must for your Christmas list to Santa Claus!

Tord Eriksson • Archive • July 1992

It's a really super program which surely will become a must for any serious drawfile creator.

Des Thomas • Archimedes World • June 1992

If I had to write a priority list for a new Archimedes owner it would look something like this:

1. Vector – this is so much better than anything else available.
2. Chameleon – I will use this package a lot – it really delivers a new dimension to vector.

Chameleon

drawfile
colour
editor

- ◆ Edit colours quickly by just clicking on an object
- ◆ Change line colours
- ◆ Change fill colours
- ◆ Fill transparent objects
- ◆ Give colours to transparent lines
- ◆ Use 4 different styles of fountain fill for graduated shades to achieve those really professional results
- ◆ Choose colours from extended palettes
- ◆ Perform both local and global changes
- ◆ Undo and Redo colour changes
- ◆ Save highly-compressed files (compatible with Vector/Poster)
- ◆ Save spot colours or CMYK separations (with crop marks)
- ◆ Print Draw files of any size (with or without trim marks)
- no need to buy a separate program to do this!

£37.50



ALL THE SHADING IN THIS ADVERTISEMENT
WAS ACHIEVED USING CHAMELEON

★ Send for our FREE lavishly illustrated full-colour 32 page catalogue ★

Poster

the ORIGINAL
single-page
publisher

now has new features!

- ▲ text areas can be created and edited within Poster
- ▲ compressed files can be saved (compatible with Chameleon/Vector)
- ▲ RISC OS 3 users can flip and rotate both text and sprites
- ▲ the colour selectors have 256 colour palettes
- ▲ any number of text objects can be converted to path text in one go
- ▲ there is a choice of simple or full menus
- ▲ many operations are much faster
- ▲ Chameleon's fountain-filled objects can be moved, scaled and rotated
- ▲ a utility allows large documents to be printed independently of Poster

£89



Chatter

the
comms
package

As a budget-priced introduction to communications
only the most commonly used protocols are supported.

Chatter supports:

- ★ manual and automatic modems
- ★ ANSI, viewdata and Teletel display protocols
- ★ Campus 2000
- ★ X modem, Y modem and Z modem file transfers
- ★ speeds from 75 to 19200 bps

£37.50

This is the package preferred by 4Mation for in-house use

★ Each of these packages includes a FREE SITE LICENCE ★

Snippet

the
sprite
toolkit

- freeze the screen at any time and then save all or part of it
- save screens from programs running under the PC or BBC emulators or outside the desktop
- set a path for automatic saving, each sprite being given a unique name
- perform operations on a number of sprites at the same time e.g. change mode or alter scale
- add and remove masks and palettes, and change masks into colours
- use a whole-screen background magnifier when editing fine detail
- use a sprite to fill areas – the window in the illustrated sprite was filled with another sprite
- print screens as they are grabbed or after saving
- save sprites in a compressed format
- sort a spritefile according to name, mode or size
- rotate, shear and flip sprites
- convert old BBC screens to sprites
- add borders of any size or colour to a sprite
- crop a sprite in a variety of different ways
- rotate, move and copy parts of a sprite
- draw shapes, including segments, sectors and rays
- change colours both locally and globally
- add text (at an angle if using RISC OS 3)
- fill areas using lots of different effects
- drag sprites to and from a Snippet window
- display sprites in a carousel

£37.50



DBEdit

Desktop
BASIC
Editor

£30

- DBEdit is a full Wimp based Risc OS multitasking editor written in machine code for compactness and speed. You can edit a 500K program on a 1Mb machine.
- BASIC, Command, Obey, PostScript and Text file types are supported.
- Active indexes can be created very simply e.g. by entering the word DEF, an index of all DEFPROC's and DEFFN's is created. Selecting an item in the index moves the program to show the appropriate section. Up to 9 indexes can be created and displayed at the same time.
- The superb Find/Replace functions include fast incremental search, wildcards, and four search strings for repeated searches.
- External communication points allow utilities to communicate with DBEdit.
- Automatic backup facility does not overwrite previously saved versions.
- Permanently saved profiles store settings and allow DBEdit to be set up for any task.
- Code is edited in a tokenised form for minimum memory use.
- Error message throwback allows error line to be highlighted when a program is run.
- Code compaction.
- Reserved words, typed in BBC Basic shortened form, expanded automatically.
- Code blocks such as REPEAT...UNTIL, IF...ELSE...ENDIF, DEFPROC...ENDPROC, WHILE...ENDWHILE can be selected with one keystroke.
- New View displays the DEFinition code if there is a PROC or FN call on the caret line.
- Support for line references (eg GOTO's).
- Numerous other features such as undo and delete, keyboard shortcuts, macros for fast code generation, text file sorting, syntax checking.

Prices include P&P but exclude VAT.



We have demo versions of each of the above items (except Chatter). Please send the correct number of blank discs when ordering.



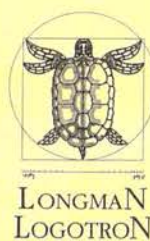
4Mation 14 Castle Park Road Barnstaple Devon EX32 8PA
Tel (0271) 25353 Fax (0271) 22974

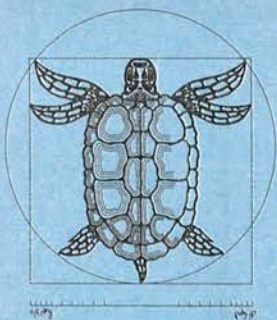


**There's a
Great
new
Deal
at
Dabhand
Computing**

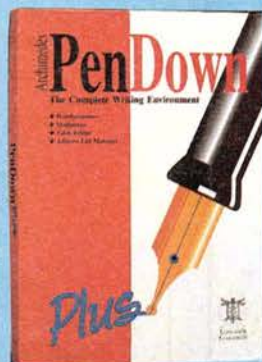
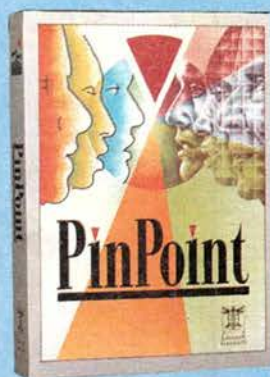
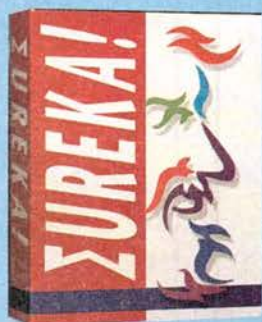


Acorn 





LONGMAN
LOGOTRON



THE SOFTWARE

Eureka

The tool for making numerical calculations and organising financial analysis.

Eureka brings the power and innovative features of the latest PC and Macintosh spreadsheets to the Acorn World. Taking full advantage of the Multi-tasking operating environment, Eureka is simply the best RISC OS spreadsheet available - bar none. Whether you judge it on ease of use, comprehensiveness, speed or flexibility nothing comes close.

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Graham Bell - Acorn User

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Chris Davies. Times Educational Supplement

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ROM	2MB
Floppy disc (unformatted)	2MB
Keyboard (103 key enhanced PC AT style)	Standard
Hard disc	60MB IDE
Parallel / Serial	Standard
Network interface slot	Standard
Free expansion slot	1
3.5mm jack for stereo sound	Standard
Internal mono speaker	Standard
Multi-Scan Monitor	Standard

Acorn A5000PS

CPU (32-bit RISC processor)	ARM 3
Operating System	RISC OS 3
Main memory (expandable to 4MB)	2MB
Embedded cache	Standard
ROM	2MB
Internal hard disc (formatted)	80MB
Floppy disc (unformatted)	2MB
Keyboard (103 key enhanced PC AT style)	Standard
Parallel / Serial	Standard
SCSI controller	Optional
IDE controller	Standard
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Multi-Scan Monitor	Standard

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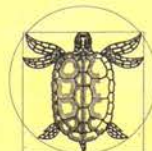
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Operating System	RISC OS 3
Application suite	Standard
Main memory	2MB
Expandable to	4MB
ROM	2MB
Internal hard disc (formatted)	60MB IDE
Floppy disc (unformatted)	2MB
Keyboard (103 key enhanced PC AT style)	Standard
Mouse (3 buttons)	Standard
Parallel centronics bi-directional	Standard
Serial	Standard
Network Interface Slot	Standard
Free expansion slot	1
3.5mm jack for stereo sound	Standard
Internal Mono Speaker	Standard
Multi-Scan Monitor	Standard
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Eureka!	Standard
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Acorn A5000PS	
CPU (32-bit RISC processor)	ARM 3
Operating System	RISC OS 3
Application suite	Standard
Main memory	2MB
Expandable to	4MB
Embedded cache	Standard
ROM	2MB
Internal hard disc (formatted)	80MB
Floppy disc (unformatted)	2MB
Keyboard (103 key enhanced PC AT style)	Standard
Mouse (3 buttons)	Standard
Parallel centronics bi-directional	Standard
Serial	Standard
SCSI controller	Optional
IDE controller	Standard
Free expansion slots	4
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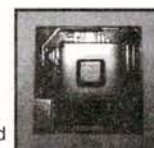
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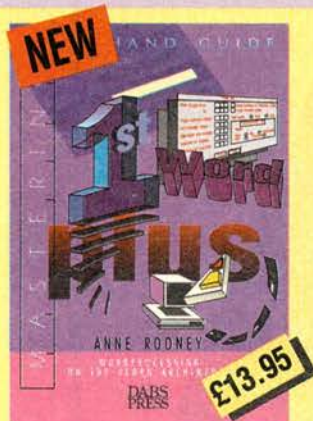
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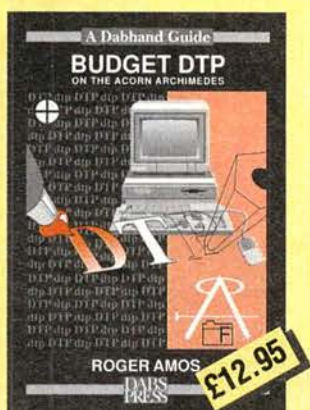


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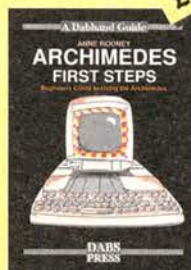
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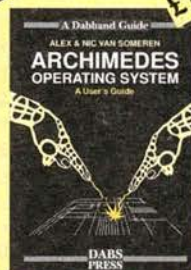
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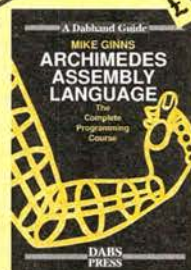
Paul Gaunt - ARCHIMEDES WORLD



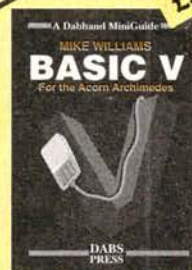
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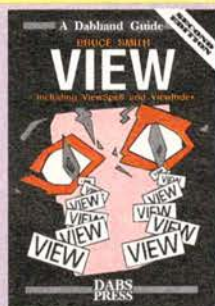
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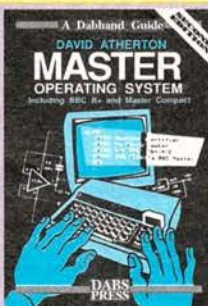
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BBC BOOKS

View Dabhand Guide Bruce Smith's comprehensive guide to View word-processor. 'For those who want a complete thorough and readable guide to View, then Bruce Smith is your man' (Beebug). £12.95 or £17.95 with disc.

Master Operating System David Atherton's definitive reference work including the famous 'differences between all eight-bit models' section used by countless programmers to ensure compatibility across the full eight-bit range. £12.95 or £17.95 with disc.



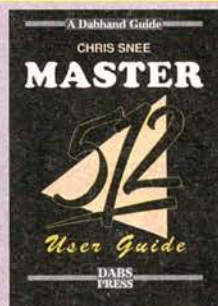
Mini Office II Guide Detailed tutorial by Bruce Smith and Robin Burton for the BBC/Master versions of the software. Price £9.95 or £14.95 with disc.

Mastering Interpreters and Compilers Fascinating Bruce Smith title on creating high level languages. £14.95 with free disc.

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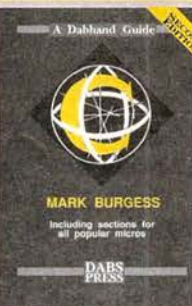
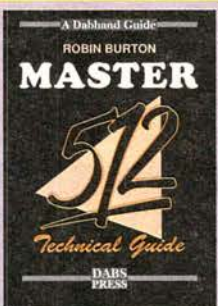
Master 512 Technical Guide The companion guide with full 512 programming information and hardware expansion projects. Price £14.95 or £19.95 with disc.

ARCHIMEDES SOFTWARE

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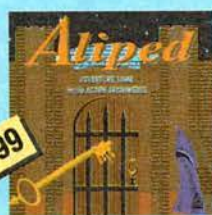


"Harry and Dave manage the laundry firm, but things have been going wrong. They work all night but will they put things right?" Multi level game, high quality graphics, simple key controls for easy movement of characters. Needs 1MB. RISC OS compatible.

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"Decent looking game" "Worth investigating"

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In the Letters section of the November issue, John Smith wondered whether Acorn could compete against the falling costs of the PC world. In fact they don't have to and here's why:

Hundreds of PC manufacturers at present are using processor chips from a number of sources. The leaders in chip production are Intel who have designed the infamous x86 series – the 8086, 286, 386 and 486 soon to be joined by the 586.

When they design a new chip its functions are copied by a few other manufacturers who bring out cheaper versions. These chips are bought by other companies who put them on to standard motherboards. They are bought by a

larger group of companies who put them in PC boxes and sell them at various prices.

But because so many companies are making these machines the business is cut-throat and competition very fierce. Price-cutting is so harsh that it's hard for retailers to keep up. They are faced perpetually with the problem of stock on the shelves but being offered newer and better machines to sell that are cheaper.

At the user end the problem is just as bad: If you buy a good PC now there'll be cheaper one advertised next month with all the software and facilities you want and more besides. You just can't win.

The fact is that in the PC market

technological development is far outstripping the needs of the poor user who is told endlessly that what he wants is a machine that's has this version of Dos or that version of Windows.

But don't forget that to use that software you'll need this hardware and if you really want to see the pictures properly you'll need this type of video card – *and ours is cheaper.*

Outstripping needs

Now this is all very well and is standard advertising technique, but we are in the grip of a world recession which is particularly bad in the UK. All commercial companies are having a bad time and on top of this they are forced to strip their prices to the barest minimum.

If you produce a machine for £400 and sell it for £600 you make £200 profit but if you have to cut the sale price to £500 you have to sell *twice as many machines to make the same profit.* This is happening in a shrinking market and there's only one result: Companies go out of business.

And is there any proof? Only last month Amstrad, the giants of the price-cutting computer world, revealed that for the first time in years they were making a loss. In the same period, for the first time in quite a while, Acorn made a healthy profit.

Quite simply Acorn don't have to play the game because they're not selling PCs.

But because so many companies are making these machines the business is cut-throat and competition very fierce

Meet the Acorn Computing professionals



Steve Turnbull graduated from Manchester University with a BSc Honours degree in Computer Science. He then worked for the Open University as a research programmer on The Project for the Blind where he designed a number of programs on the BBC B and Master for use in education and medicine.

After writing freelance articles for the computer press he moved to *The Micro User* in 1986 as editorial assistant becoming Editor two years ago. He still has a strong interest in programming and was one of the coders of the Fun School series.



Pam Turnbull also graduated from Manchester University with a BA Honours degree in History. After working in specialist publications for a number of years she moved to Europress Publications in 1987 as Reviews Coordinator for magazines such as *PC Today*, *ST User* and *Amiga Computing* and she edited the *PC Buyer's Guide*.

She has a good grounding in home computers of all types with a special interest in their use in education. Her experience on 8, 16 and 32-bit machines allows her to place new developments and programs in a wider perspective.

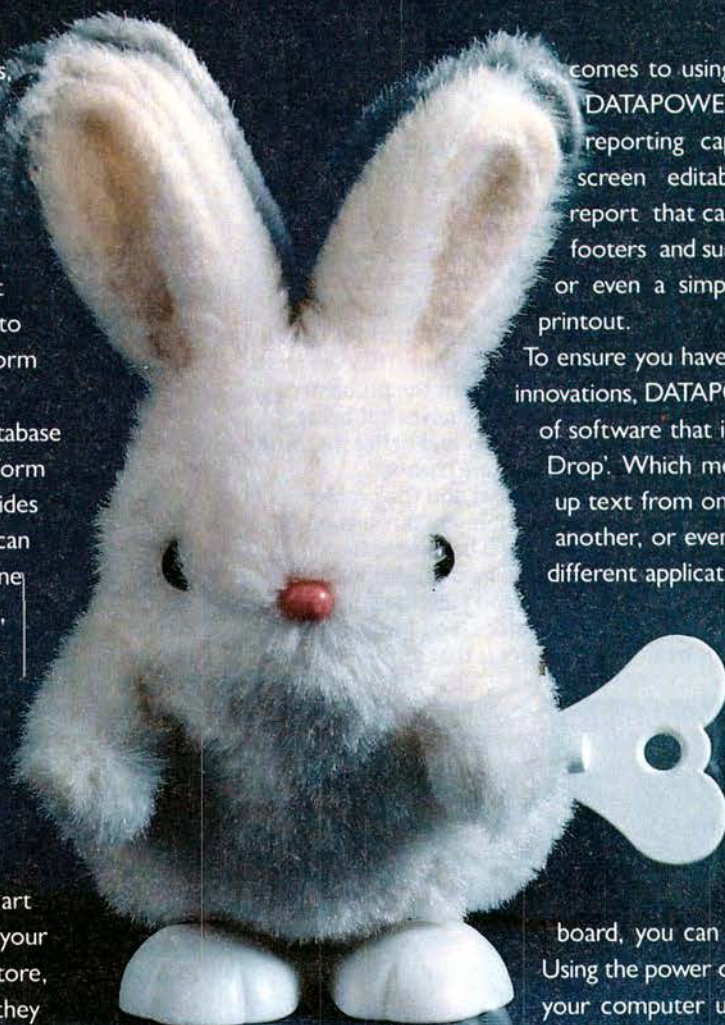
Steve Turnbull

'Batteries not included'

Just like a new toy without batteries, a computer even with a processor as fast as Acorn's is powerless without good quality software. And now NEW from Iota comes an all new piece of software, which is arguably the most POWERFUL piece of software to be released on the Acorn Platform this year.

DATAPOWER is a powerful Database incorporating a frame based 'form designer' user interface, that prides itself on being easy to use. You can incorporate pictures, true multiline text, multiple choice questions, tick boxes and much more. It has built in graphing facilities, with over 20 different styles of graphs, that can be displayed in 2d or 3d and they can be incorporated directly into your reports as draw files.

DATAPOWER uses built in compression and a state of the art file structure, to ensure that your Datafiles are not only small to store, saving you disc space, but that they are also very FAST to access when it



comes to using your data.

DATAPOWER also has powerful reporting capabilities, with an on screen editable preview of your report that can incorporate headers, footers and summary totals, averages, or even a simple three column label printout.

To ensure you have all the latest powerful innovations, DATAPOWER is the first piece of software that incorporates 'Drag and Drop'. Which means that you can pick up text from one field and drop it into another, or even drop it straight into a different application, such as EasiWriter or Impression, as part of a report or letter.

You can even Drag and Drop pictures straight from one database to another, so finally there is no need to cut and paste from an invisible clip board, you can simply drag and drop! Using the power of the software to make your computer useful, and at the same time easy to use.

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Cyborg: Two games for the price of one

AUTHORS of ALPS Adventure System, UltraSonic Sound and Music System and Creator Arcade Games Designer – Alpine Software (0762 342510) – have developed Cyborg.

This game costs £25.95 and is a mixture of fast-action arcade and atmospheric illustrated adventure with beginner, standard and advanced options.

Compressed on to three disks Cyborg is set on the hostile planet Arallax IV. Both arcade and adventure parts can be played separately, but to achieve maximum points all parts should be tackled in the correct order.

In the arcade sphere you are protected by a cyber-electronic suit with displays showing energy and air supply. Naturally the natives are hostile so you have a power laser.



● With Cyborg you can choose the shoot-'em-up ...

For the more adventurous this section consists of more than 100 locations with over 1.5Mb of compressed Mode 15 graphics. Cyborg



... or opt for the adventure option

makes the most of a sophisticated parser, understanding full sentences such as *Open the yellow door and go north then drop all but the blue book.*

Diary dates

Christmas Shopper Show, Olympia

19-22 November
Blenheim (081-742 2828)

BETT '93, Olympia

20-23 January
EMAP (071-404 4844)

Seventh International Computer Show, Wembley Exhibition Centre

19-21 February
Westminster Exhibitions
(081-549 3444)

Adding ink

COMPUTER Disks and Ribbons (0533 471485) have a new re-inking service. Ribbons can be re-inked up to 50 times saving both resources and money.

To see for yourself, they will be re-inking ribbons at the Computer Shopper Show. In addition, if you have any old ribbons you don't want bring them along to the Computer Disks and Ribbons stand. For every 20 ribbons they receive they will give the cost of one ribbon to the Children in Need appeal.

Filing and multitasking solutions

ELECTRONIC Solution (0443 430355) are about to release two new utilities. Enigma costs £59.95 and is a filing system combining full ADFS/SCSIFS/IDEFS/NET and so on compatibility, compression and data security.

Described as the ultimate protected filing system its features include fast 13-bit LZR compression, individual file or directory passwording and file password grouping.

Virtually invisible in use each directory image has its own individual master password and can be protected against movement to another filing system or directory – you can even ensure that another copy of Enigma can't read it.

Tasker multitasks any non-wimp application using a similar approach to the way the PC Emulator multitasks PC programs. Games can be run on the desktop for instance which gives you the ability to save screens as sprites and drop back into single-tasking mode when you want and the windows can be resized and so on in the usual way.

The mouse can be connected so that it is controlled by the application rather than the desktop. The price of Tasker is £34.95.



Clean it

● Now you can keep everything clean

OFFICE cleaning specialists Sapona (021-236 9501) have produced a handy mini-briefcase cleaning kit from £10.99 to banish the dirty computer. The kit contains wipes and sprays to clean keyboards, casings, disk drives and screens.

IDE Hard Drive Kits

The range of IDE hard drive upgrades from RISC Developments is second to none. We have already supplied well over 2000 drives to home, educational and business users, and can offer first rate solutions to users of the A310, A400 series, A540, A3000, A3010 and A5000. All drives are supplied ready to use, and can be installed in minutes. The price includes the interface card, fitting instructions and manual. We are able to offer both internal or external drives for each computer, depending upon your preference, or hardcards, where the drive is mounted on the interface board itself.

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A310 / A400	Internal	40 Mb	£249	100 Mb	£349
	External	40 Mb	£349	100 Mb	£449
Hardcards		20 Mb	£205	60 Mb	£359
		20 Mb	£199	60 Mb	£349
A5000 Second Internal		100 Mb	£279	200 Mb	£459

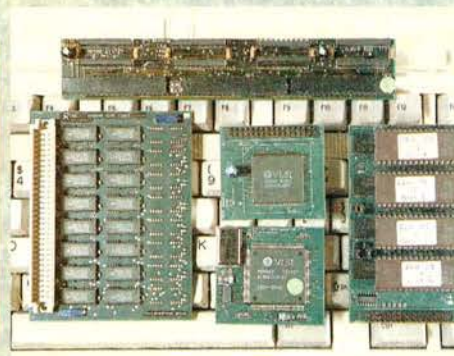
This is just a selection of our drives. Please call or write if the drive you require is not listed.



Memory and Processor Upgrades

RISC Developments produce a wide range of memory upgrades for the full spectrum of Acorn computers. All the upgrades use the highest quality components and consist of either plug-in chips or multi-layer circuit boards designed to Acorn's guidelines. This prevents the reliability problems and random errors during use that are found on some lower quality upgrades. All the upgrades are fully user fittable and supplied with comprehensive instructions.

A3000 1Mb RAM Card	£49
A3000 1Mb RAM Card (Upgradable to 4Mb)	£59
A3000 4Mb RAM Card	£139
A3010 1Mb RAM Upgrade	£39
A3010 4Mb RAM Card	£129
A3020/A4000/A4 2Mb RAM Upgrade	£89
A310 4Mb RAM Card (Inc MEMC 1A)	£269
A400 1Mb RAM Upgrade (4Mb max)	£35
A410/1 8Mb RAM Card	£569
A420/1 8Mb RAM Card	£509
A440 and A440/1 8Mb RAM Card	£479
A5000 2Mb Upgrade	£99
ARM3 Upgrade	£185
Fitting of ARM3 to A3000	£30



Spectra Colour Scanner

Spectra is a revolution in colour scanning systems for the Acorn range of computers. Its clever design means that it is as simple as you could possibly want and yet as powerful as you will ever need, producing professional results every time. It is a flat-bed scanner, which means that you simply lay your original under the scanner, load the program and 'click' on Scan. The scanner will then do the rest, scanning in 16 million colours. The result is a sprite that can be in full colour, 256 grey-scale or mono depending upon your requirements. This is a full multitasking application and so you can continue using the computer even while it is scanning.

The Spectra kits include the scanner itself, an interface card, user guides, software and everything else you need. Versions are available for the Archimedes & A5000, A3000 (External) and A3000, A3010, A3020 & A4000 Internal.

Spectra - Archimedes or A5000	£549
A3000, A3010, A3020 Internal	£549
A3000 External	£559

Available from all good dealers. All prices are exclusive of VAT and carriage. Education prices on request.



Cumana winner

MARCH CD Rom competition winner, Rebecca Smith, was presented with her prize in style by John Simnett, managing director of Cumana. Rebecca attends The City of London School for Girls and hopes to use the resources at her disposal in her school work.

John Simnett commented: "Cumana are delighted to present Rebecca with one of our latest CD-Rom drives – an important piece of equipment which will feature prominently in education in the future".



● Cumana's MD John Simnett puts Rebecca Smith's CD-Rom through its paces

A3010 expansion

HCCS (091-487 0760) are one of the largest manufacturers of ram upgrades for the Acorn range and have produced the Ultimate Expansion System. This has been designed for the A3010 and A3020 and removes the limited expansion capability of the single mini-podule design.

With the HCCS system you can have up to three micro-podules, in addition to other interfaces on the A3010 and A3020, supporting up to four devices including a hard drive, digitiser and SCSI interface. Versions of the Ultimate Expansion System are in development for the A4000, A5000 and A3000.

The Ultimate Multi Podule which forms the basis of the whole system, costs £39 and plugs into the mini-podule slot. There is a different Multi Podule for each model – A3010, A3020, A4000 and so on – and it is designed to accept various interfaces and devices.

All the variants are provided with at least two micro-podule sockets. At its most expanded you can have an internal hard drive, Vision Digitiser and SCSI interface all fitted at the same time on an A3010.

Of course you could then use the SCSI interface to daisy-chain other devices such as a second hard disk. To ensure that the power and heat requirements are met an additional power supply can be fitted.

Man of the year

AT the Interactive Learning '92 Conference in Edinburgh, Acorn received the *Best Presentation of the Conference* award and the Interactive Learning Man of the Year accolade was presented to Acorn's Roger Wilson.

He was introduced by Longman Logotron's Chris Roper as follows: "Our Man of the Year should be more famous in our industry than either Sir Clive Sinclair or the yet-to-be ennobled Alan Sugar."

"But if Roger Wilson had never existed, we arguably would not have had the BBC Microcomputer, the Acorn Archimedes, Acorn Replay or the Newton; and the world would be a much poorer place."

"If you are too old to have been at school during the 1980s and weren't a school teacher during that period, it isn't easy to comprehend the enormous impact of the BBC Micro and BBC Basic on the use of computers in school. Roger Wilson didn't just design the BBC Micro, he also wrote the BBC Basic interpreter. He was Steve Wozniak and Bill Gates rolled into one."

"Steve Furber and Roger Wilson went on to design the Acorn Risc Machine... The true measure of the achievements of Roger Wilson and Steve Furber will only be seen as the ARM processor finds its way into new devices with a world-wide developer community. He will never blow his own trumpet; so we must blow it for him." Congratulations Roger.



● The Interactive Learning Man of the Year, Roger Wilson

Acorn down-under

ACORN Australia have set their sights on an Acorn computer in every student's satchel – well at least an Acorn Pocket Book. Greg Sabire, the managing director of Acorn Australia foresees the handheld computer becoming an essential piece of educational equipment in the coming years.

The Australian arm are concen-

trating on the education market and at a time when some schools want each child to have their own computer.

Toshiba have just dropped their attractive low-cost notebook so will the Acorn Pocket Book be as tantalising? The Pocket Book's connectivity to Acorn machines may be the key to success.

Micros for Special Needs, Oldham

OCTOBER was a busy month for exhibitions and conferences and it commenced with the NW Semerc's Special Needs show, with Acorn companies there in force.

Hosted by Martin Littler, MD of NW Semerc, it featured seminars on a host of topics from maths and dyslexia to a CD-Rom for the blind.

One in five people in the UK have a learning difficulty and/or motor control problems that prevent them acquiring a full education. However, this problem can be tackled successfully by adapting existing technology to meet each individual's special needs.

The annual Micros for Special Needs show has come to represent how this is achieved as well as how software can be designed to make the most of all levels of ability.

NW Semerc (061-627 4469) themselves took the opportunity to launch My World 2 produced by Derbyshire Educational Support Centre for IT.

The enhanced version of the My World framework package includes linked screens for story telling and sequential activities, buttons to rotate, resize and flip objects.

There are also pop-up windows containing libraries of objects plus grids and magnetic points make it easier to arrange objects accurately.

To take advantage of the new facilities there are new versions of Make a Town, Electronics, Goldilocks, Tiles, Pythagorus, Ou, Dressing, Grandeur, Timetable and, of course, Teddy. You can use existing screens produced in My World in the updated framework.

More was also seen of Optima an impressive simple-to-use package which lets you link words, pictures and sounds to create talking books

and so on. This package is nearly ready for release and retails at only £18. Users of Phases will be interested in Full Phase which is priced at £28 and due for release almost immediately.

The original word processing and DTP package in this incarnation combines graphics and text with digitised speech with letter and words being spoken as they are typed. Full sentences can be cued and reviewed and commands such as changing the letter size, font or text alignment can be spoken as well as typed.

iibit Education Products announced the production of an A4 scaled-down version of the A3 Oldham Overlay keyboard.

The new board will also feature a serial and parallel port and is scheduled for launch in January.

The small footprint will make it suitable for special users with limited movement and the new double switch access interface will enable those with



● Award winning 1st Paint

Nimbus, PC, Amiga and Apple Macintosh.

An integral part of the event were the Micros for Special Needs Technology Awards made in the presence of Eric Forth, Minister of State for Education.

Choices from Widget Software (0926 885303) won one of the software awards with the 32-bit design interface programmed by Huw Dawkes earning particular merit for a program that can realistically be used by ordinary teachers.

Keyboard Technology's (0509 610706) were presented with the second of the three awards for their simple but powerful painting package 1st Paint, with NW Semerc's My World Resource Packs winning the contest for the Resource Materials award.

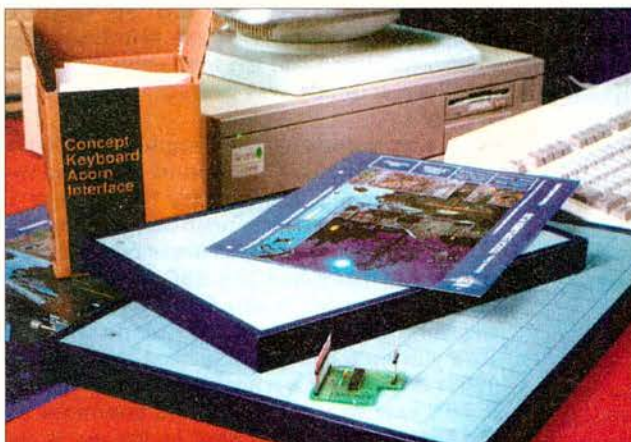
Cumana (0483 503121) took the opportunity to exhibit the Special Needs CD-Rom which is due for release in April. There are sub-libraries on a range of subjects for all ages, for instance original illustrations of English, Afro-

Caribbean and Asian fruit and vegetables with the actual words spoken by English, Afro-Caribbean and Asian members of the community. Sound effects have been added to inspire story writing.

For those without CDs there will also be a collection of floppy disks called the Just Picture series featuring a selection of resources from the CD.

On the hardware side Cumana were also exhibiting their combined hard drive and SCSI card unit for the A3000 at £299 for a 40Mb hard drive. The CDFS system is included as standard.

They also revealed AC Auto – a handy portable power inverter for special needs users to re-charge their laptop A4s on the road. The unit is neat and is fitted with a 13 amp standard mains 3-pin socket and an adaptor which plugs into a vehicle's cigarette lighter. The AC Auto is priced at £79.



● The Cortian CKAI – no user port required

poor motor control or learning difficulties to access software using switches.

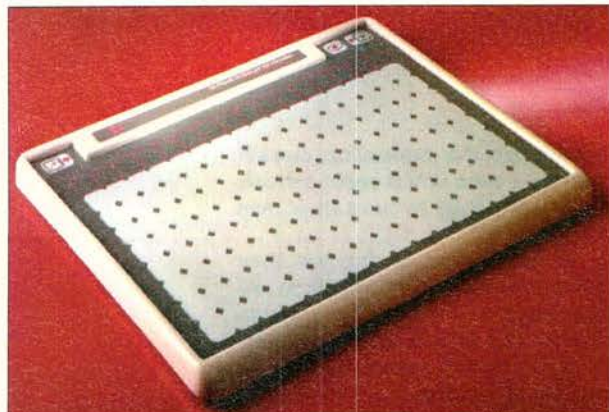
In addition 500 of the most popular overlays will be bundled with the board as well as NW Semerc discount vouchers worth £120. The cost of the new board is £115.

The Concept Keyboard Company (0962 843322) announced an enhancement to their overlay keyboards as well. They have launched a new interface which allows a Concept Keyboard to be connected to an Acorn 32-bit machine where no user port has been fitted.

The Cortian CKAI removes the necessity of buying a separate I/O module as it makes use of the Econet socket.

They also unveiled the Universal 2010 keyboard which will fit simply and easily to a range of different computers from the Acorn range to the

● The A4 Universal Oldham Overlay Keyboard



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All prices exclude VAT



Alsystems
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A3000 60Mb HardCard - Internal	£349.00
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Please add carriage charges as shown and then VAT @ 17½%. Callers by appointment only please. Educational Orders welcomed (Terms 14 days Nett). All offers are subject to availability. Prices and manufacturers specifications may change without notice. Goods not offered on a trial basis. E&OE

Games - Wide range available

Agressor	£13.99 a
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Alarion	£11.99 a
Alien Invasion	£11.99 a
Apocalypse	£20.99 a
Bambuzie	£13.99 a
Bobby Brookhead	£13.99 a
Bubble Fair	£12.50 a
Bug Hunter in Space	£8.75 a
Cartoon Line	£16.25 a
Catalyst	£16.50 a
Chicks Away Compendium	£24.99 a
Chuck Rock	£17.25 a
Chess 3D	£12.50 a
Enter the Realm	£16.99 a
Flight Simulator Toolkit	£28.95 a
GODS	£16.99 a
Grievous Bodily ARM	£16.99 a
Holed Out Compendium	£19.50 a
Iron Lord	£12.99 a
James Pond	£16.99 a
Lemmings	£16.99 a
Loop	£16.99 a
Manchester United Europe	£16.99 a
Mag 29 Super Fulcrum	£26.99 a
Nebulus	£16.99 a
On No! More Lemmings	£16.99 a
Pandora's Box	£16.99 a
Peaky Muskrats	£16.99 a
Provocator	£12.99 a
Quest for Gold	£17.99 a
SWIV	£15.99 a
Saloon Cars	£15.99 a
Superior Golf	£12.99 a
Top Banana	£16.99 a
Tower of Babel	£15.99 a
Waterloo	£18.99 a
Wonderland	£22.49 a

Software - Wide range available

Accounts Manager	£275.00 b
ARTWORKS	£148.00 b
Armadus	£52.95 a
Atelier	£62.00 b
Chameleon 2	£32.50 a
Compression	£36.99 a
Desktop Thesaurus	£17.50 a
Easewriter	£112.00 b
Equator	£35.99 a
Graphbox Professional	£94.99 b
Helix BASIC	£79.99 b
Impact	£39.99 a
Impact Demo Disc	£1.00 x
Impression 2	£121.99 b
Impression Junior	£65.99 b
Impression Business Supplement	£36.99 a
Ovation	£80.99 b
Pipedream 4	£146.99 b
Protext V5	£99.99 b
PC Emulator V1.8	£87.99 b
Poster	£73.00 a
Presenter GTi	£80.00 c
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Showpage	£107.00 b
Snippet	£24.00 a
Tracker	£34.00 a
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Educational - Wide range available	
Desktop Folio	£83.00 b
Fun School 3 (-5s, 5-7s or >7s)	£16.99 a
Fun School 4 (-5s, 5-7s or >7s)	£16.99 a
Genesis II	£65.00 b
Genesis II	£96.00 b
History Costume Library	£14.50 a
Junior Pinpoint	£21.00 a

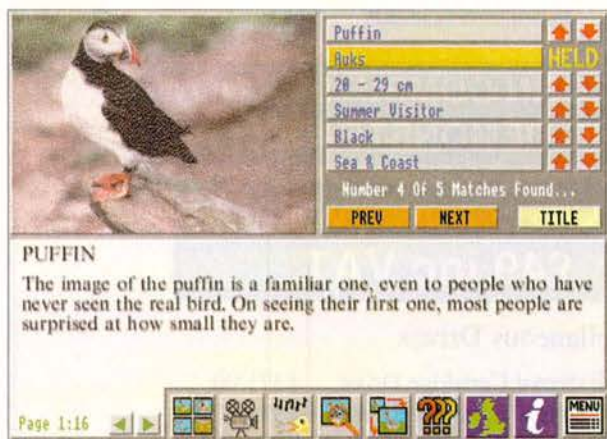
Landmarks (all titles)	£18.90 a
Little Red Riding Hood	£13.00 a
Logotron Logo	£53.50 a
Magpie	£43.50 a
Pendown v2	£43.50 a
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VERY HIGH LEVEL OF DETAIL	
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Titles available include: Aliens - Animals - Dinosaurs	
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Trees & Gardens	
World Geography Maps	£21.50 a
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Accessories	
Leading Edge Joystick Interface	£31.00 a
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Clones Micro Mouse	£25.00 a
Mouse Mats	£3.25 x
TV Modulator	£38.00 a

Phone to BNC cable for mono monitor	£3.95 a
Memory Upgrades	
2nd Mb for A3000	£43.99 a
2nd Mb for A5000 (upgradable)	£48.99 a
4th Mb for A3000 (Atomwide)	£153.00 b
4th Mb for A5000	£129.99 b
RAM for A4101 A4201 (per Mb)	£29.99 a
A540 4Mb RAM Cards	£39.99 b
A5000 2Mb (to 4Mb)	£98.99 b
A5000 2Mb (to 4Mb) (IFEL)	£96.00 b
Upgrades	
Armadus Sound Sampler	£135.00 c
Mid Interface A3000	£35.99 b
Mid Interface 300/400	£35.99 b
RISC OS 3.1 for A5000	£15.00 a
RISC OS 3.1 for A310 A4xx1 &c	£39.00 c
RISC OS 3.1 for A3000	£39.00 c
IFEL RISC OS 3 carrier board for A310	£23.00 c
ARM-3	£169.99 b
IFEL Backplane for 310 (with fan)	£53.99 b
IFEL Backplane for 310 (NO fan)	£44.99 b
FAX-Pack (Computer Concepts)	£249.95 c
Printers & Consumables	
Canon BJ10ex with Turbo Driver & lead	£272.00 d
BUC800 colour with driver & cable	£175.00 f
Epson LQ-570	£229.00 e
Howlett Packard Deskjet 500	£269.00 e
HP Double capacity cartridge	2 for £33.99 a
HP Deskjet 500C (300 dpi Colour)	£365.00 e
Deskjet 500C colour cartridge	2 for £36.99 a
Laser Direct Hi-Res 4	£899.00 f
Laser Direct Hi-Res 4 with Cassette	£989.00 f
Laser Direct Card for LBP4	£321.00 f
Laser Direct Hi-Res 8	£1279.00 f

Toner & Drum for LBP4	£50.00 b
Toner & Drum LBP8	£90.00 b
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Scanlight A4	£267.00 d
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Vision Digitiser - Mono A3000 Internal	£48.50 a
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For External A3000 Vision add	£12.75
Vision Digitiser - Mono Internal module	£48.50 a
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Vidi Archimedes - A3000	£362.50 b
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A3000 Internal 30Mb IDE	£199.00 c
A3000 HCCS HardCard 45 SCSI	£290.00 c
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Morley SCSI card (state machine)	£145.00 c
Morley 52Mb Internal SCSI with card	£299.00 d
As above external (State machine)	£369.00 d
Morley 100Mb Internal SCSI with card	£439.00 d
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As above with Morley SCSI card	£412.00 d
For cached card with all Morley products add £45.00	
Quantum 52Mb IDE Bare Drive	£180.00 d

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Comer 120Mb SCSI Bare Drive	£280.00 d
Drive mounting bracket - 400s - 300s	£9.99 a
ST506 Controller card for 310	£78.99 b
Socket panel for external ST506 drive	£23.00 a
Atomwide 105Mb SCSI External	£359.99 e
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Single 5.25" DS 8040 PSU (CS400S)	£109.99 e
As above without PSU (CS400S)	£97.99 e
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DSDD (800K formatted) for all Archimedes	
50 with labels	£18.50 a
100 with labels	£36.00 b
200 with labels	£71.00 c
High Density (1.6Mb) for A5000 & all 1992 models	
50 with labels	£32.00 a
100 with labels	£62.00 b
Disc Boxes for 3.5" - 80 capacity	£6.50 a
Second User	
Watford 4 Slot Backplane	£25.00 a
Cumana 3.5" DS 80T drive with PSU	£50.00 b
Dragon 32 with some software	£38.00 c
Dragon 32 - needs attention	£15.00 c
Brother HRS printer - operates by thermal transfer onto plain paper or with thermal (fax roll) paper.	
Centronics (parallel) interface.	£50.00 c

Time/CD-Rom Europe '92, London



● British Birds in action at CD Rom Europe '92

THE Acorn presence was limited to say the least at this conference and exhibition with the flag being held high only by ILP and Anglia TV displaying their British Birds and Key Plus CDs respectively.

However, as the CD-Rom hardware

is cheaper for the PC and the software more prolific for the PC and Apple Mac it was interesting to see what may soon become available for the Acorn marketplace.

Of course many of products available for the PC can be read on a 32-bit Acorn via the emulator or PC card to, at the very least, give you access to the data files. Training was by far the biggest application on display aimed at secondary schools and above as well as business training.

On the conference side there were papers on training and education, corporate and retail sectors, R & D and a host of clinics.

Chris Doerr's - Microsoft Corp USA - paper on Multimedia: The Vision and The Reality was particularly interesting especially as he expounded the virtues of Microsoft's new full motion video system, stressing the advantages of digital video and their Audio Video Interleaved technology which

promises to bear the fruit of the Multimedia Viewer in the near future.

This *unique* Viewer runs without extra video compression hardware. A typical sequence of AVI permits 15 frames per second of motion video to run within Windows at resolutions of 160 x 120 pixels and includes support for 8-bit audio.

This demonstrated the usual ignorance of what's available on the market. Acorn's Replay system is vastly superior with a practical maximum resolution of 320 x 256 pixels (although the software could handle bigger frames with ease), 25 frames per second and 16-bit stereo sound.

Jump up and down as I might with indignation, neither Acorn - nor Apple as it happens - were present to enlighten the mis-informed masses. More depressing still is that when the Multimedia Viewer makes it to our streets Microsoft will be hailed as the innovators ... what a waste.

Acorn User Show, London

THE crowds of people humming around the stands at Wembley over three days may have been a little disappointed by the lack of special show prices, but this didn't prevent Aleph One from selling all their hardware stocks on the first day or Computer Concepts shipping ArtWorks by the case-load.

Many new products had their launch at the show though some long-awaited applications still weren't quite ready. Longman Logotron (0223 425558) though demonstrating Eureka had none to sell. However, Revelation ImagePro - a paint and image package aimed at the professional market - was available for £139.

S-Base was also on show and is promised for December. This relational database management system for

Risc OS machines pays more than a passing resemblance to dBase in the PC market and it will be interesting to see how it measures up to the new version of Squirrel from Digital Services.

S-Base is programmable and comes in four versions: S-Base Personal at £99, Developer at £199, Developer + for £299 and for multi-user networks S-Net Server.

The heart is S-Base is the S language which comprises over 300 commands and functions and permits highly customised productivity for minimal programming effort.

Risc OS 3 is recommended, as is 2Mb of ram. This gives you a maximum of 254 fields in each record but no limit on index fields, records, tables and views.

On the wordprocessor side Icon Technology announced the birth of StartWrite, a junior version of EasyWriter aimed at primary schools.

Colton Software are working on Wordz. Aimed at education and business it has powerful applications built-in such as customised text styles all accessed by the click of a button.

Completely wysiwyg, help messages are displayed on screen via a status line. Not only does this show where you are in a document but what commands you have selected and the impact they will have on your document. Wordz is due for release in 1993.

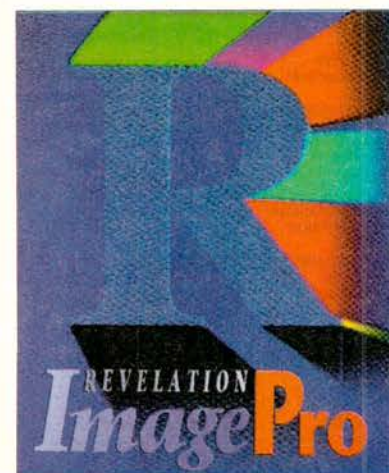
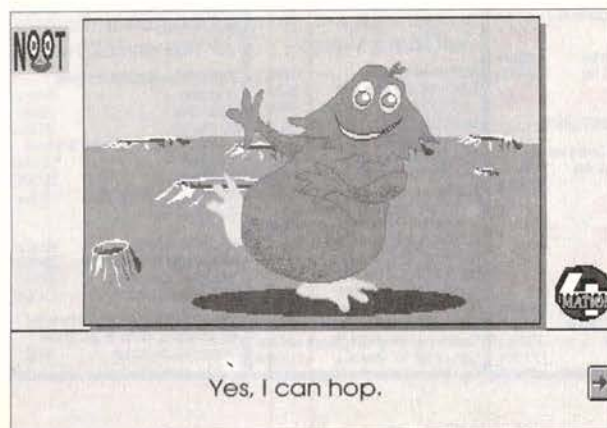
On the hardware side bargain monitors and colour printers where the stars of the show. However, the quan-

tity of graphics enhancers now available shows the limitation of the present Risc OS machines. Rumours were flying about the new high-end range from Acorn next year but will they have 16 or 24-bit graphics? Only time will tell.

Computer Concepts (0442 63933) took the opportunity to reveal their ColourCard which has been developed in conjunction with Wild Vision (091-519 1455). A graphics accelerator card for the A3000, 400, 540 and A5000 with Risc OS 3, it retails for £255.

It's a single-width expansion card

● Dweek - a new hero in the Podd vein



● Revelation ImagePro - for professional users

The New Generation!

RISC user



RISC User, the highly popular magazine for Archimedes users, is bigger and better. The new RISC User is now B5 size which offers a sophisticated design, bigger colour illustrations and bigger pages with more information. Altogether better value and no increase in price.

RISC User is still a convenient size to assemble into an easy-to-use reference library, containing all the information you need as an Archimedes user. Every issue of RISC User offers a wealth of articles and programs with professionally written reviews, lively news, help and advice for beginners and experienced users, and items of home entertainment. Altogether RISC User has established a reputation for accurate, objective and informed articles of real practical use to all users of Acorn's range of RISC computers.

RISC User Disc The RISC User magazine disc is widely acclaimed as the best magazine disc available for Acorn computers. Each disc is packed with original software of the highest quality, fully tested and supported by our own staff plus all the programs from the magazine.

Discounts RISC Developments is also well known for its range of professional software and hardware. As a RISC User subscriber you will receive at least 15% off any RISC Developments' software and 5% off RISC Developments' hardware, and this list of products is constantly growing.

A year's subscription to RISC User is £19.90 for the first year and only £18.40 for a renewal. (Overseas: £29 Europe, £38 Americas and Africa, £41 Elsewhere).

THE BEST PROGRAM AND TEXT EDITOR FOR THE ARC
HAS JUST GOT A LOT BETTER

NEW

DeskEdit2

A major new release of the popular and powerful editor DeskEdit brings a whole toolkit of features that will assist all programmers, whether novice or experienced, and whether using Basic or C - and all within Acorn's powerful multi-tasking RISC OS Desktop. There is a lot for text users too.



All this of course is in addition to the features that have made DeskEdit so popular among users of Acorn machines, and which resulted in glowing reviews when it was first launched a year ago. IN FACT DESKEDIT IS SO GOOD THAT IT IS USED WITHIN ACORN ITSELF!

New features include:

- **Basic program Renumber** - including partial renumber and marked sections.
- **Basic Program Indenter** - indents Basic programs after IF THEN, REPEAT, FOR etc.
- **Basic Abbreviations** - all Basic V's several hundred abbreviations are implemented).
- **Programmer's Calculator** - a powerful calculator especially designed for handling bits and bytes.
- **Multi-purpose Browsers** - an easy to use browser window containing a list of finds. Clicking on any one of these will take you to the corresponding place in your file.
- **Throwback** is fully implemented so DeskEdit can respond to messages from C compilers etc.
- **IFIND** - DeskEdit comes with a powerful stand-alone Acorn application called Find, which can find text strings in a whole group of files, just given a wildcarded filename.
- **Extended Saves** - DeskEdit 2 can save a special data file with the position of the caret, wordwrap correctly set and markers

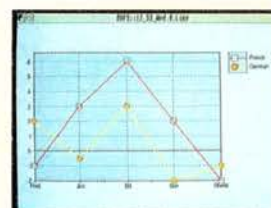
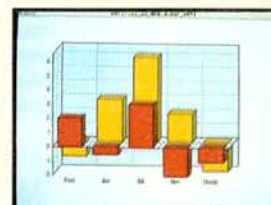
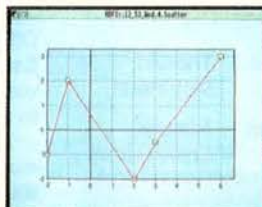
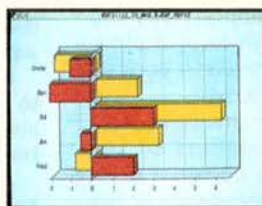
DeskEdit 2 (disc, new manual, keystri and quick reference card) PDE2b £31.95 inc + £2 p&p
DeskEdit 2 Upgrade Code PDExa £9.95 inc + £2

NEW

ChartWell Version 1.1

A sophisticated Graph and Chart Package which now offers new features.

Full handling of **negative values** in bar charts (both vertical and horizontal), line graphs and scatter graphs. Where negative values are used, the user will be able to choose whether axis labelling appears on the axis itself or at the left and/or bottom edges of the graph display. Bar charts using negative values will have the option of a solid or transparent 'zero platform' for 3D displays.



More **flexible handling of data** limits, allowing the user to configure ChartWell for handling more data points than the current fixed limit. Users will now be able to allocate as much of the available memory in their system as they wish for this purpose.

A number of improvements to positioning of labels, titles and values have been incorporated to avoid potential clashes and overlaps which occurred in some circumstances.

Chartwell and manual
Price £29.95 inc + £2 p&p Code PCHWb
Version 1.1 of ChartWell is available free of charge to existing users (send the original disc and a SAE marked ChartWell Upgrade).



which has entirely surface-mounted chips promising higher screen resolutions with a higher refresh rate which means less flicker.

More colours and speed are also available with 16 and 256 colour screen modes and all the colour selectable from 16 million hues. Scanned images can be seen on screen in 256 true grey scales while better colouring can be achieved with the new palettes for ArtWorks users.

In addition the ColourCard allows you to use 15 bit-per-pixel true colour screen modes with over 32,000 colours on screen at once. The extra speed is achieved by using a secondary video frame-store. This increases the processor's main memory access speed resulting in faster screen redrawing in the higher resolution screen modes.

The development and production of the ColourCard is the first joint venture between Computer Concepts and their new partner Wild Vision using Wild Vision's hardware design and video experience to Computer Concepts' software knowhow.

The ColourCard complements both companies' existing product lines and opens up the way for true 24-bit colour. The number of education products and companies at the show was also greater this year. 4Mation took the opportunity to introduce the world to Noot and the hero of the hour, Dweek, while other companies were giving tantalising glimpses of what they have planned for the BETT show in January.

Meet the team

ACORN are promoting their new range of machines right up to Christmas.

To assist this they are holding a series of open days that are free to everyone.

They take place all over the country, usually supported by and promoted through local dealers. For further information contact Acorn on 0223 254254.

This is also your chance to meet some of the members of the Acorn Computing editorial team who will be in attendance at the show highlighted below:

Brighton	Sat 5 Dec	The Old Ship Hotel
Crawley	Sun 6 Dec	Scandik Crown Hotel
Bradford	Sat 12 Dec	Novotel
Leicester	Sun 13 Dec	Leicester Moat House

NB: Prices in Acorn Computing are recommended retail prices and are correct at the time of going to press. They do not include VAT or postage and packing unless otherwise stated.

the christmas COMPUTER SHOPPER SHOW grand hall OLYMPIA 19-22 november 1992

AS part of Acorn's campaign to re-launch themselves on the general consumer market, there will be an Acorn village at the UK's biggest consumer computing event – the Christmas Shopper Show.

The Acorn village is sponsored by Acorn Computing and as well as showing 14 new machines, there will be a host of peripherals and software.

The heart of the village is given over to a seminar theatre where you can see the machines put through their paces as well as discussing topics such as portability, DTP and data handling.

The emphasis will be on the family and the products shown will show this – a colour video picture digitiser for £75 and the only 32-bit machine for under £500.

Linford Christie and John Regis will also be at the show on Saturday putting Quest for Gold and some volunteers through their paces.

Other Acorn-ites in the village will be:

Risc Developments – software, hardware and publications

ICS – hard disks, ram and products such as Fantasy

Krisalis – a whole range of top quality games from Lemmings to SimCity

Lindis – displaying multimedia packages such as CableNews

PRES – hardware and business packages such as MicroTrader

Norwich Computers – publications and upgrades for the 32-bit range

You can see all this and much more at the Grand Hall, Olympia from November 19-22.

Late news... Late news... Late news...

Acorn forums on the cards

DAVID Reid of DR Computer Products has been working in the Acorn market since the days of the Atom and still works for Acorn from time to time. He considers the time ripe for an Acorn Forum to further Acorn machines in the home, education and business communities.

There will be scheduled meetings allowing members to discuss and explore the power of Acorn machines as well as providing talks and open forum discussions with well respected personalities from the Acorn world and business.

Membership is open to all and will cost £20 which will give you opportunities to try before you buy and to obtain goods at a discount. A postal question line is also planned. For more information send £2 and a large SAE to The Acorn Forum, 5 Bridge Court, Bridge Road, Chertsey, Surrey KT16 9LX.

Inkjet cuts show healthy sales

COMPUTER Concepts (0442 63933) have announced a reduction in price of their Canon inkjet printers which are bundled with the ultra fast TurboDriver printer drivers. For example the Canon BJ10ex mono printer with TurboDriver software falls to £229 with the colour BJC800 model cut to £1,599.

The TurboDriver software gives you 12 Acorn outline fonts and the outline font manager and are available separately for £49 for the BJ10ex and £99 for the BJC800.

Computer Concept's Catharine Moir commented: "Sales of inkjet printers are very healthy at the moment, which I am sure reflects a general upgrading from old dot matrix printers. As a result we are passing on our improved purchase prices."



24-bit colour from a monochrome BJ-10 or DeskJet!

Or almost any other printer which can take coloured inks or ribbons.

Two-pass printing for best results on a DeskJet 500C. No more soggy brown blacks!

Results comparable in quality with print from a £2000 colour printer.

CMYK colour separation 'on the fly' using normal files (Draw, Impression etc) and standard RISC OS printer drivers or Computer Concepts' TurboDrivers.

Screen preview of colour separations. Fine tuning and non-linearity compensation to suit different inks.

Discover the excitement of colour printing for the first time, or improve the quality of your current work.

ColourSep

Goodbye Monotony.



Ink Setup

Ink group name: Non-linear Inkman

R	0		C	
G	174		M	
B	255		Y	
L%	60		K	

Ink: C M Y K

Ink group: 1 2 3 4 OK

Single user copy £25. Site Licence £60.

Bargain Starter Packs (software + inks + cartridges):

BJ-10 £95*. DeskJet 500 £69. Add £35 for Sites.

Order from ICS or ask your dealer.

Prices exclude VAT. Carriage is free on UK prepaid orders. *Or £59 without cartridges.

ICS (Ian Copestake Limited)

Dept AC3, 1 Kington road, West Kirby, WIRRAL, Merseyside, L48 5ET

Tel: 051-625 1006

Fax: 051-625 1007





ideA'92

ideA'92 is the name of a new generation of IDE interface cards from ICS, fully compatible with RISC OS 2, 3 and 3.1. Unlike other makes, Internal Hard Disc Upgrades from ICS will fit neatly inside the new A3000 Series computers.

With **background mode** operation, even our 8-bit A3000 Series internal interface is producing speeds in excess of 1 Mb/sec with certain hard discs. 1.6 Mb/sec is possible with our 16-bit interfaces. Compare that with the competition!

Not one, not two, but three levels of **password protection** provide the security your data really deserve.

Hard discs can have **partitions** so they appear as separate drives, with different protection levels if required.

Almost **limitless expansion** is possible via the I²C port which most of our cards have always included as standard.

A3000 Series Internal 2½" Upgrade* or A300/400/500 2½" 'Hard Card'*

*These are different products – please specify which you require

20 Mb	£212
60 Mb	£349
80 Mb	£449
120 Mb	£549

A300/400/500 3½" Internal Upgrade

40 Mb	£210
80 Mb	£275
100 Mb	£305
200 Mb	£499
340 Mb	£775

A very special offer from ICS!

A3010 'Family Solution' + 20 Mb Hard Disc	£599
As above with 2 Mb ram	£645

ICS has always led the field in IDE systems for Acorn computers. You can buy our products with confidence, either direct from us or from any Acorn dealer who values quality as well as price. The above examples of our range are all available as this goes to press, and include all the *ideA'92* features. External options are also available, but may not yet include all the features described. Please contact us for the latest information.

Prices are for complete upgrade kits and exclude VAT. Carriage is free on UK prepaid orders.

ICS (Ian Copestake Limited)

Dept AC3, 1 Kington road, West Kirby, WIRRAL, Merseyside, L48 5ET

Tel: 051-625 1006 Fax: 051-625 1007

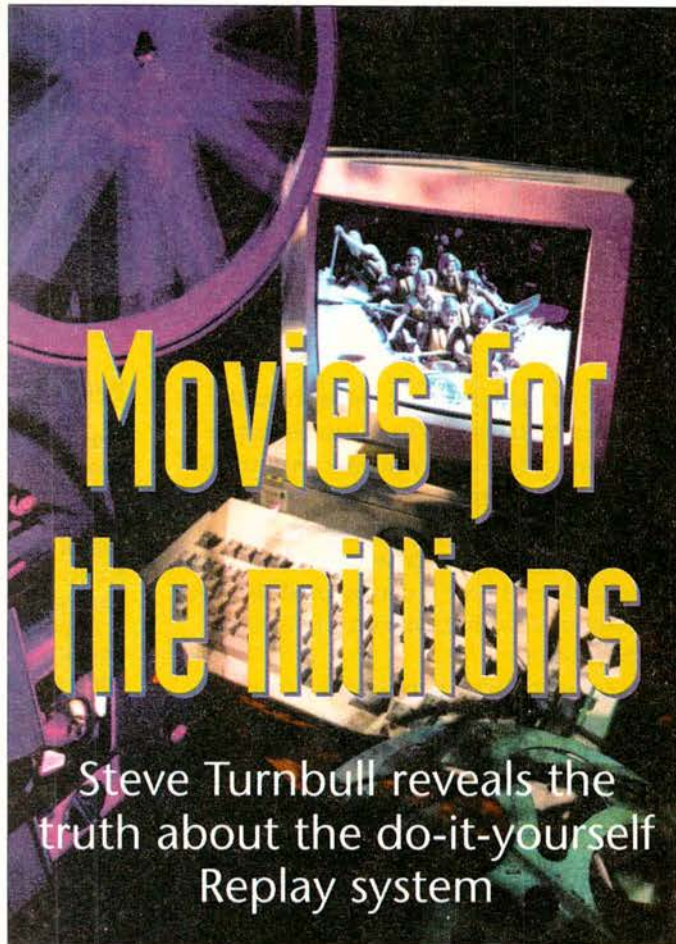


ACORN Replay is the most sophisticated full-motion video system on any type of personal computer – see the panel for a comparison with its rivals. But it has been the domain of professional companies producing commercial CD-Roms – until the advent of Replay DIY.

Nearing the end of its development cycle, Replay DIY has been created by Irlam Instruments as a dedicated offshoot from their Moving Image real-time digitiser expansion card that puts a digitised and scaled image into a window on the desktop.

Replay DIY will take any video source and digitise it, in real time, into a form of 24-bit colour. This can then be dumped to your hard disk at a rate of 12.5 frames per second. This frame rate is actually a function of the speed of the hard disk, with very fast drives that have their own caching system images can be stored at 25 fps.

The frames also include the sound but are not compressed. This requires Acorn's own Replay Compressor software which then converts the frames into proper Replay files. These can be played back using the Replay system which may be part of a CD-Rom application or available with a



Steve Turnbull reveals the truth about the do-it-yourself Replay system

multimedia program such as Genesis or Magpie.

The amount of storage space required is enormous as there's no compression at the initial digitising stage – a 120Mb hard disc will give four minutes of uncompressed video. This may not seem much but for video clips, which is the primary use of this type of product, four minutes is plenty – most video clips on CD-Rom last less than 30 seconds.

Once compressed the average size to time ratio is 5Mb/minute.

The DIY system will appear at just

£250 (excluding VAT) and will occupy a standard expansion card slot, so the smaller machines will have to wait for their own version. Irlam themselves are considering producing a complete system including A5000, Replay DIY and very big hard disk.

So who's going to use it? Apart from the power enthusiast who'll buy it because it's there, the majority of the take up will be with schools.

You can make a video of a science project – and it could be a stop-motion video – then it can be digitised and included as part of a multimedia report.

Or the school trip could be shot, and interesting sequences extracted: *Here's a drawing of the train we saw ... this scan shows how it looked 50 years ago ... and this is Sir*

falling into the duck pond

Many schools are already taking advantage of the ability to have CD-Roms made from large multimedia databases they have created themselves. Replay DIY provides the opportunity to include yet another type of dynamic data.

For the future we can expect to see full non-linear editing systems for Replay files on a par with the professional non-linear video editing systems available on both PC and Acorn machines – but at a much lower price.

The amount of storage space required is enormous

Full Motion Video: Acorn lead the way

The concept of Full Motion Video covers the idea of playing video pictures (plus sound) on a personal computer screen and all the major computer platforms – Apple Mac, PC and Acorn – have their own methods.

Apple have a system called QuickTime which, like Acorn's, is based in software. This means that the sound and video are held in a digitised computer file and are played back by specific software.

Despite Apple's previous good record on producing quality software, QuickTime is not without its faults: For a start the video image is tiny at just 1/16th of the screen. But worse than that, the sound is not synchronised to the video.

The software just starts them off together and hopes they stay that way. Finally it won't run on all machines, only the faster Mac II's. A

new version, QuickTime 1.5, addresses these and other problems to some extent but it's still not good.

The PC took a different route altogether: It uses *real* video but that means extra hardware is needed and extra hardware means lots of extra expense with the associated incompatibility problems.

However Microsoft, the software leaders in the PC market, announced at the recent CD-Rom Show at Wembley that next year they would be bringing in *soft* video but it's nowhere near as good as Replay.

An equivalent of Replay DIY exists for the Mac but it costs in excess of £500. The PC currently uses real video so there's no comparison at present but at the prices usually charged we can expect their Replay DIY equivalent to cost over £500 as well.

CD-Rom explic

SIX months ago we took a look at the hardware, software and future implications of CD-Roms. With the DTI's involvement in this area and the fall in hardware prices many people responsible for information dissemination – whether in education or commerce – are looking more favourably on the medium.

Talking to some potential buyers reveals a great deal of confusion about what is available and how it can be used. So first of all, anyone with a 32-bit Acorn machine can run a CD-Rom device all they need is a SCSI interface.

Acorn's philosophy seems to be to divert people away from expanding their existing machines and to upgrading to newer ones – don't be put off. Even a basic A3010 can have a SCSI device added and so run a CD-Rom. I'm not saying this is the ideal solution but it is one which may fit your pocket and circumstances.

An 8-bit SCSI interface is available from Lindis (0986 85477) for £99 with the CDFS on Eprom, though a floppy version for earlier interfaces, without CDFS, is in the pipeline. You will notice a difference between the ARM 250 and ARM 3 machines as there will be a slowing down especially with Replay files.

But once you have the hardware, what next? One of the CD's biggest pluses is its relatively low-cost production, but is this enough? Fred Grainger from ILP in a recent paper at CD-Rom Europe '92, commented: "CD-Rom will always have a place in our school library, it will need to become highly interactive before it should be allowed into the classroom". From the classroom and office it will filter to the home but are we at this stage yet?

Most of the software available on CD-Rom is encyclopaedic and it is arguable whether we are coming to saturation point. Design is the key and while some of the more recent databases are stressing their interactive nature, the true interactive applications on 32-bit CD-Roms are left in the hands of Revelation and Frontier 2000.

Replay is in evidence nearly everywhere – whether it is merited or not – and 650Mb can be eaten up quickly if a lot of video is used. High quality stills and sound are also demanding. So it is really only in the traditional mode of text retrieval that the 650Mb comes into its own. But people want and need the graphics and images, so the key must be in the design with more emphasis on involvement of both individuals and groups.

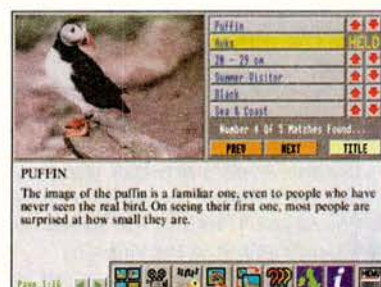
British Birds

This product could be termed a database with a difference because of its interactive nature. Produced in partnership with the RSPB and British Library the disc contains full-screen colour images of all British birds with 25 motion video clips.

Although ILP have fallen into the trap of including some clips which don't actually show anything much and you can only have one bird file on screen at a time, there is a good range of on-screen tools and an excellent scrapbook application.

British Birds falls into three parts: Encyclopaedia, Quiz and Tutorial. In the first section the name, family, cm size, status in the British Isles, main colour and habitat are all given. You can search on any or all of these attributes with a hold option – similar in principle to that on a fruit machine.

For instance if you hold down the main colour attribute as yellow and search on the others, one of the choices will be the Golden Oriole. You could then refine your search



● Two data cards from the forthcoming British Birds CD-Rom

sion

Steve and Pam Turnbull assess the state of play in the multimedia market

still further by holding down features common to the Golden Oriole in addition to its colour.

Hypertext is used to good effect throughout the package allowing the reader or researcher to go deep into bird lore or aerodynamics.

Other options open to each entry are controlled by icons: Still picture, movie – Replay files operating in the usual manner – sounds, magnifications (x4) and a small/large picture option. There is also a map showing where and how likely you are to find the subject.

The quiz is pictorial, aural and against the clock giving random questions while the tutorial is an excellent way into the subject for the non-enthusiast. The scrapbook utility is particularly nice as you can assemble your own material and input text as you work.

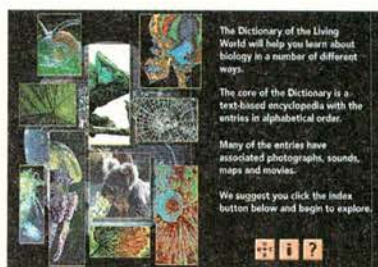
ILP also have a host of other products in the pipeline. In order of release comes: *Inventions That Changed the World Volume 1* – covering subject areas of materials, communication, food, air travel, land travel, energy and so on; *Learning French* – with Spanish and German following; and *Sex Education* – produced in conjunction with local health authorities, hospitals and the Church of England.

Interactive Learning Productions
(091-261 1255) £150

Dictionary of the Living World

This was the first Acorn-specific CD-Rom to be produced by Media Design Interactive and showed how good such a product could be – and where it could fall down terribly.

In its favour it contains a lot of detail about the living world that would be useful for quick reference and for school projects. Unfortunately a number of errors reduce its usefulness because it introduces uncertainty as to the rest.



● Simple intro to a powerful database

Other excellent features are the four way search – for articles that contain *this*, *that*, *something* and *else* – plus additional search buttons to isolate entries that have pictures, sound, movies or world distribution maps.

As with all MDI products you can extract absolutely everything from a data card, the text, pictures, sound, movies, maps and so on.

Media Design Interactive/Optech
(0252 714340) £175

Hutchinson's Encyclopaedia

This was just about the first CD-Rom that became available for the Acorn machines and is composed of the PC CD-Rom with a separate application disc for Risc OS.

The encyclopaedia is quite comprehensive with something on most subjects and you can just

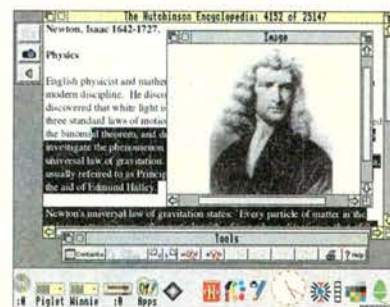
browse through page after page but that's not really what a computer-based system is good for.

One window displays an alphabetical list of the titles of all the articles on the CD-Rom. Using a small input window below it you can enter a word – say *Newton* – and the program will search the titles for any that contain that word.

In this case you end up with the alphabetical index highlighted at *newton* (the unit of force). By double-clicking on *Newton, Isaac* you can bring up the article on this clever gent. The text can be saved in full, or a selection extracted – with *Newton* there's also a picture.

At this point the only advantage over a book is that you can extract the information directly. But it's with the search facilities that this type of program comes into its own.

Using just the simple search you can check the entire encyclopaedia to create a sublist of every article containing the word *Apollo*. Then check these and remove every article in the sublist that doesn't contain the word *Moon*, which removes references to artists and



● You can extract words and pictures

CD Simulator

For people developing CD-Roms it can be tricky testing the CD-Rom itself before going into production. A stage called the *Gold*, which is a master copy, must be made and then tested out.

The CD Simulator from eesox (0223 264242) is a system that mimics a CD-Rom right down to the access times, it works on any Acorn machine that has a SCSI interface, CDFS and a nice big storage device – ideally 650Mb free for a completely packed out CD-Rom, of course.

You create source files in the form you think will work on the CD-Rom then create a CD-Rom image using one of the supplied programs. Then

the source files are transferred across to the image in proper ISO9660 format and the system multitasks as it runs so you can go on working.

Once this stage is complete you can then use the CD-Rom image as a fake SCSI device. You can opt to simulate the speed of a CD-Rom if there are any concerns about the access speed or you can just go ahead and run it at top speed if you're testing program correctness.

When the set-up stage is complete you can click on the new CD-Rom icon on the icon bar and you have what looks like a real CD-Rom. The only thing you can't test is CD audio output.



● This one's a real video nasty . . .

frames of the movie or the data card as a sprite.

Charlotte Hemming has a very nice voice but Creepy Crawlies is a real video nasty.

Media Design Interactive/Optech
(0252 714340) £90

Frontier 2000

For anyone who has failed to come across this superb piece of software, the program is centred around Carlisle – the frontier between England and Scotland – and covers 2,000 years of history right up to 1991.

Not only that, but at the same time geography and environmental matters crop up as do religious considerations and other beliefs. The program truly has potential in most curriculum areas from Key Stage 2 through to 4 and beyond.

The general idea is that users attempt to solve clues by visiting locations and seeking expert help from a variety of people. The clues are organised into themes such as Railways, Beliefs or The Romans.

Excellent graphics make the CD version great fun and superb education. It has everything that the original has plus a whole load more. This is not surprising since there is in excess of 420Mb of information stored against the 1.6Mb on the two floppies together.

Some of the extra information has extended the scope of the trails. There are five new trails covering Tullie House, The Saltire Cross, Transport, Carlisle City and The Professors Favourite Places.

These are of the same type as on the floppy version but the already superb graphics are transformed. Cartoon sprites of the expert helpers have gone to be replaced by high-quality photographic images – they are real people and, in some cases, they speak as well.

It is in the area of background resources that the extra CD-Rom memory really comes into its own. The fully searchable time-line is extended to 35,000 words. The picture library of high-quality digitised photographs is also huge with 158 separate images all of which are fully searchable.

For example, we requested a picture of Quintinshill – the scene some 80 years ago of Britain's worst rail crash – and were rewarded by a high definition modern colour photo of a diesel train at the fateful spot.

Many of the photos are old. A

statues. Finally remove every article that is about *mythology*, which loses Artemis and Diana from the list. Now you have a list of articles related to the Apollo space missions to the Moon which you can read at your leisure.

Try doing that with a paper encyclopaedia.

PEP Associates/Attica Cybernetics
(0865 791346) £99

Revelation 2

This one should be classed on its own because it isn't a database, it's an application program like !Edit or !Paint.

Revelation 2 is an image processing program that allows you to draw and paint on images plus, more importantly, apply changes to the overall colour allowing you to emphasise certain elements or convert them to sepia and so on.

A full review isn't appropriate here but the program itself only

occupies a small part of the CD-Rom, the rest taken up with dozens of pictures you can use or abuse with Revelation or any other paint program.

Longman Logotron
(0223 425558) £139

Creepy Crawlies

Another excellent creature database from MDI, this one is devoted to the most unpleasant of living things: Snakes, scorpions and spiders are not too bad – the Gila monster is pretty cute – but you have disgusting movies of such things as blowflies and ichneumon wasps, not to mention cockroaches, two types of bloodworm, slugs and hissing cockroaches.

The introductory screen groups the nasties into sections like *Down to earth*, *Wet stuff*, *Killers*, *On the wing* and so on, which leads to an index on the creatures in that category. There's also a main alphabetic index, but we could find no search facility.

Two interesting options are available on the iconbar menu: One alters the language from English to French while the other changes the content of the text from Key Stage 2/3 to Key Stage 1/2, but it's pretty short and simple anyway.

Another interesting innovation here is the inclusion of a narration on every creature so you can have a spoken description of each nasty, the narration is different to the written text.

You can save everything as usual, the text, the narration, pictures in two sizes, the movie, individual

● A selection of CD-Rom disks from Cumana's CD-Rom Portfolio for Education



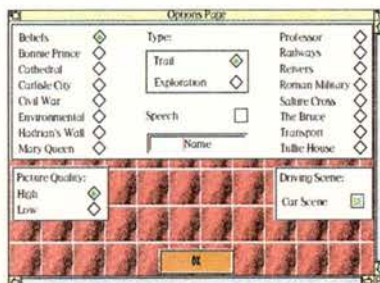
favourite of ours is a delightful class photo of Upperby School in 1896 showing a group of Carlisle children along with the names of a number of them. The digitised quality shows how much care has been taken to get things right. All pictures and text can, of course, be saved off and printed using any Risc OS printer.

Finally, you've read the books which come with the pack, you've done the trails, now see Frontier 2000, the movie. We're not referring to the first rate tourist video included in the whole package but to the Replay film clips stored on the CD.

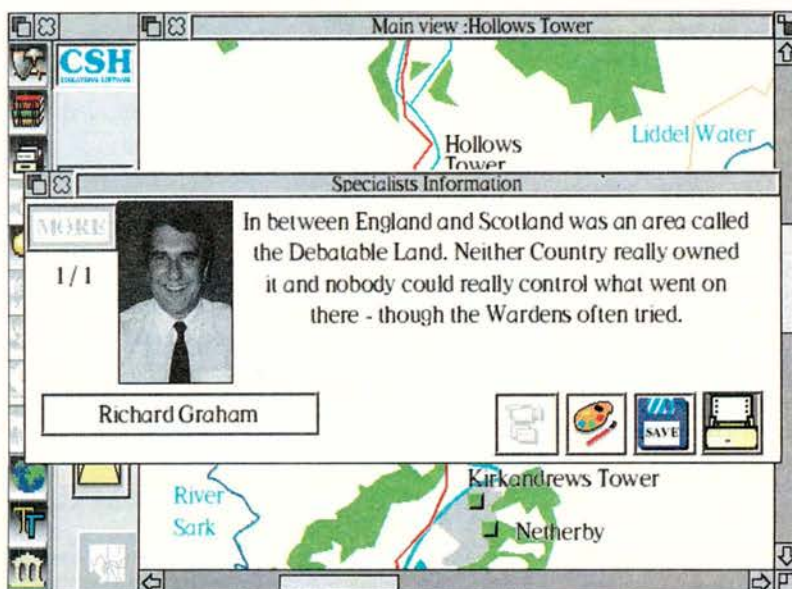
As rail enthusiasts, we drooled over the film of Sir Nigel Gresley – the steam loco – blasting its way along the Settle to Carlisle line and over the famous Ribbleshead viaduct. Royal watchers will love the film of the Queen opening the Tullie House museum in Carlisle.

The film of a barn owl really brought this fairly rare bird to life. In a selection of 13 films, a range of topics from the video age can be viewed, halted and individual frames stored and printed.

Frontier 2000 CD-Rom is



● There are lots more trails to follow



● It turns out that the Frontier 2000 experts are real people

fantastic. If you have the hardware it should be top of your list.

Rog Frost

Cambridgeshire Software House
(0480 67945) £175
(or £55 upgrade from original floppy disk version)

Grooves

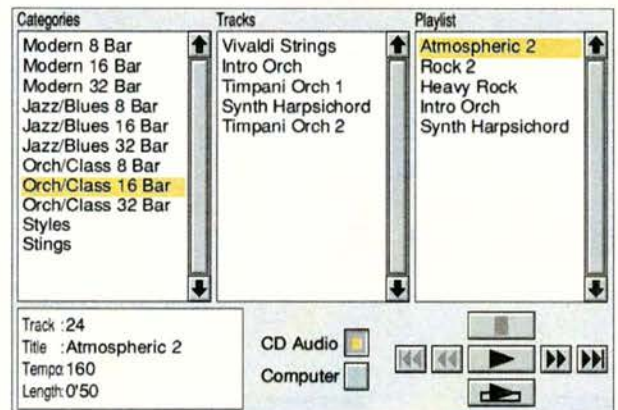
There's no real reason why CD-Roms have to contain just pictures, text and video, and in the case of Grooves it has just music – and royalty-free music at that.

It's been possible to buy cassettes of this type for many years and they usually contain fairly indifferent renditions of a variety of music styles, often played on a sophisticated synthesiser/emulator.

Grooves is no different except that you don't even get complete tunes, just clips – the longest is about 1.5mins. The wide variety of music styles would find a place in the education environment and there may be a use in brightening up presentations or multimedia applications but it really has very little aesthetic appeal unless you happen to like short sequences of musak.

You can save the music in four different formats but, frankly, this too is a cheat because each piece is saved in each of the formats, and the music data still occupies less than a quarter of the total capacity of the CD-Rom.

Having said that the Grooves application program is excellent. The window has three columns each with its own scroll bar. When you first start the left one, marked



● Music micro please!

Categories, is the only one with entries.

If you click a category its contents, the clips, appear in the central Tracks column and each you click is transferred to the third, Playlist, column. The playlist can comprise tracks from any category and they may be repeated.

You can delete a track from the playlist by clicking on it with Adjust. The first track is automatically highlighted when entered and playing will begin with this one. You can click anywhere in the playlist at any time to start from the new position.

The tape controls below allow you – unnecessarily really – to step forward and back, to beginning or end of the playlist. The play option itself can just play through once or loop.

Music can be played through the computer or from the CD Audio output and details about the current track are displayed on the left of the control window. Given some decent (or at least complete) sounds this would be very nice indeed.

Media Design Interactive/Optech
(0252 714340) £90

Image Warehouse

Another – even simpler – collection of digital data, in this case it's just pictures. Actually saying *just pictures* is to be very unfair because what's provided is a huge selection of copyright-free images grouped into artwork, backgrounds, miscellaneous, scans and textures.

There's no attempt to group them by subject so unless you know what you're looking for it's a matter of searching through every shot. To help you is the !Pictures application – you drag a directory of sprite images on to it which it scans and

All pictures and text can, of course, be saved off and printed using any Risc OS printer

■ INSTANT RECALL



● The Image Warehouse pictures are of stunning quality

then displays one after the other.

You can bring up a menu to speed up or slow down the display rate or pause it. When it's paused you can use Select to step forward and Adjust to step back.

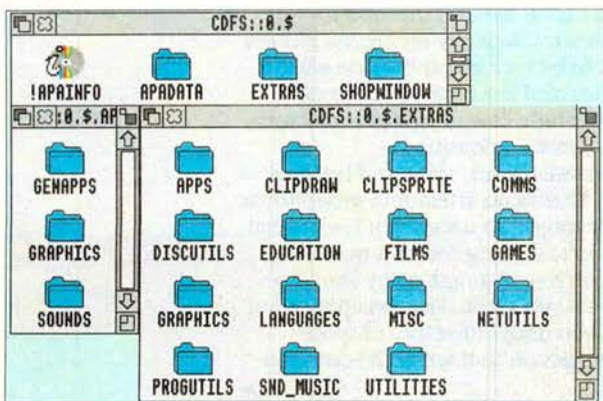
The only difficulty is that even on the fastest option CD-Roms are still slow so small pictures take significantly less time to load which means the previous picture is displayed for a shorter period – there's no easy average.

The sprites are held four different ways: Large Mode 15, small Mode 15, large Mode 28 and small Mode 28. Those in Mode 28 have twice the vertical resolution of those in Mode 15. Together they take up two-thirds of the CD-Rom – in their original Mac 24-bit colour format they would probably have occupied the entire CD.

The pictures are generally composites produced on the Apple Mac, apart from the scans. They are stunningly good and already examples have appeared within these pages, and being copyright-free they can be used completely at will. Totally excellent.

● Some really use-ful bits and bobs

Media Design Interactive/Optech
(0252 714340) £53



The Really Useful CD-Rom – Volume 1

APA Multimedia have hit the streets with a CD-Rom packed to the gills with bits and pieces. There are three main directories: One devoted to APA themselves, one full of PD software and clip-art (sprite and drawfile), and the other contains demos of commercial software from many different companies.

The APA directory contains their own sounds, sprites and drawfiles many of which have been produced for their numerous Genesis-based applications. Although it would seem that you need Genesis to run them.

The PD directory is stuffed with all the most popular PD applications like !Translatr (rather old version) and !Creator, plus sections on comms, networks, disk utilities, sound, graphics, programming, games, education and so on.

Shopwindow has five programs from 4Mation, some ArtWorks screengrabs from Computer Concepts, the SquareRoot game from Computer Eyes, examples of the Canon Ion Still Video camera from Cambridgeshire Software House, various bits from the Datastore and Klein Computers, with Linguinity bringing up the rear with Presenter GTi.

Staying for the moment with APA, they have developed a multimedia program called !Genup around which all their future products will be based. The concept revolves around the idea of quick delivery of data even on machines with small memory.

In simple terms APA have written a

compiler for Oak Solutions' multimedia package Genesis and !Genup uses the output from it. It is much faster than !Browser and only takes up 20k of space.

As well as intending to licence the !Genup system to other companies work is also well under way on Really Useful CD 2 – this will not include public domain software though.

APA (0634 295222)

£49

The Times and The Sunday Times – European Crisis

The Risc OS driver software for this PC-based CD-Rom is now available and gives you access to any of The Times and The Sunday Times CD-Roms which are available on subscription.

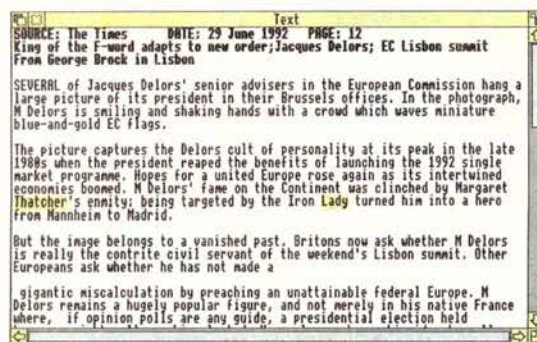
The software is very nicely put together and apart from allowing you to browse through the articles (43,790 of them) – not really very useful – you can search on articles, headlines or bylines. Plus the sections can be limited so you could just choose to search Letters and Home News, or perhaps look at everything else but those two.

Additionally you have the option to restrict the date range of the search if you want to pick out items within a certain period. The example CD-Rom we received was Jan to June 1992. Using the search option you can enter up to three words – we chose Thatcher and Lady – and specified that they were to appear in the same paragraph.

Searching on all sections



● The Times' front screen is elegant



● Lady Thatcher appears frequently

produced dozens of entries, usually more than six in any given day. So we reduced the sections to just Letters only to find Lady Thatcher didn't appear anywhere in the letters.

Choosing the more sensible option, Foreign News, revealed just two articles both appearing on July 29. Interestingly only one of the articles contained *Lady Thatcher*, the other contained *Thatcher* and *Iron Lady*.

Once you've selected the search option clicking on search again brings up an *and* or *or* option box allowing you to expand or refine your current selection.

One of the other section search options is Graphics which selects articles with pictures. Both text and pictures can be saved as can the search options so that you can implement the same search criteria on different CD-Roms.

This is a superb package and though it may seem pricey it's absolutely essential for education and researchers.

The Times Network Systems
(071-782 7104) £195 (subscription)

Wildlife on Rom – Woodland

With over 4,000 pages Woodland is concerned with ecology. Each page provides text, colour and mono images in both sprite and draw format as well as sound samples and ARM movies.

Hypertext is used to go deeper into the information. For any user with special needs there is the option of the text being spoken via a multi-tasking sound player.

The application comes with a range of curriculum support materials developed through work carried out in school such as project profiles, National Curriculum mapping and a resource guide.

APA have written their own delivery software in pure ARM code to give fast delivery across networks including those using broadcast loader.

Users can save a special file which will record the pages that were open on the screen, allowing those pages to be opened at the beginning of a session – useful for teachers preparing lessons in advance.

APA (0634 295222) £150
(Due for release January)

PDSview

PDS stands for Planetary Data System and is the name used to release a staggering wealth of information from NASA on CD-Rom. The program and CDs were examined in depth in the June 1992 issue of *The Micro User*.

Using the software you can generate such things as 3-D pictures of the surface of Venus and a command script allows you to apply the same processes to many different pictures.

Also provided is PDSmovie which allows you to string together a sequence of images to produce animated scenes – such as the Red Spot

swirling around Jupiter as seen by Voyager on its approach.

PDSview is a powerful image processing system that allows you to present the images provided in a useful way although sometimes the method of doing so is a little unusual.

New users should be able to extract a lot of useful data though experienced image processors may have to adjust their way of thinking to come round to Spacetech's approach.

Spacetech (0305 822753) £99.50



● Cumana's CXX436 6-pack multiple CD-Rom drive unit

Replay Videoclip Collection – Volume 1

This is free from Acorn – although you need a CD-Rom drive to do anything with it. On the CD you get example software such as Dictionary of the Living World, a Genesis application (with the Browser), KeyAuthor files, Magpie

and a promotional sequence from Uniqueway who currently do the video to Replay conversions.

There's a whole pile of movies – as you might expect – most of which have been produced by Anglia TV.

Acorn Computers (0223 254254) £FREE



● Shuttle launch with full motion video and sound, from the Replay Videoclip Collection

Coming soon on the CD-Rom front

Attica Interactive French Tutor – lessons and AV dictionary with individual recordings taken and played back.

Attica £149

Attica Writers' Reference Bookshelf – contains concise encyclopaedia, dictionary, quotations, thesaurus.

Attica £79

The Daily Telegraph – complete text for 1991, 1992 and 1993 editions issued quarterly on subscription.

Attica £79

First Class – interactive tutorial for anyone using the Acorn Risc OS systems. Covers the first movement of the mouse to using Paint, Draw and Edit. You listen to the instructions, watch the demo then try for yourself.

Iota £tba

Hutchinson Multimedia Encyclopedia – revised and updated with over 27,000 articles, 2,500 photos and 8,000 hyperlinks.

Attica £149

Interactive Periodic Table – all the elements are accessed through an interactive display with details of atomic structure with photographs and voiceovers.

Attica £99

Illustrated Holy Bible – complete text of the King James version with over 100 illustrations. Full word search is available as is a picture slide-show and a bookmark option.

Animated Pixels/Cumana £23

Intro to Classical Music – over 250 recordings from baroque to modern. Details on composers, works and instruments.

Attica £99

ITN European Atlas – detailed up-to-date maps with zoom facilities into roads, rivers and geographical features. TV-style reports cover economics, politics and environment.

Attica £149

Karaoke Macbeth – play a role from the scottish play and the other parts are read for you. When it's your turn the program waits until you cue it to continue. Can be used on an individual or group basis.

Animated Pixels/Cumana £57.50

Living Poetry – complete anthology of poetry with over 1,500 poems with quality readings. Includes Dickens, Hardy, Keats, Milton and Wordsworth with illustrations, biographies and browse facility.

Animated Pixels £75

Sherlock Holmes on a Disk – complete text from all 60 detective stories with full colour illustrations. Facilities include a bookmark, customisation of fonts, search for word or phrase and a magnification option. A quiz is available with each story too.

Animated Pixels/Cumana £23

Space Encyclopaedia – an exploration of space through images, movies, audio and text. There are as 12 lessons and interactive experiments as well as the usual search facilities.

Animated Pixels/Cumana £23

Special Needs CD-Rom – containing sub-libraries of everything from nursery rhymes for young children to Greek myths for adults. This resources disc contains over 2,000

pictures with social sight photographs incorporated from traffic lights to ladies toilets. Calling it a Special Needs CD-Rom appears to limit its appeal but don't be fooled, it's packed with some really useful stuff.



NW Semerc/Cumana £tba

World War II Archives – historical radio archive recordings, photography and newspaper cuttings. Linked by a timeline and database.

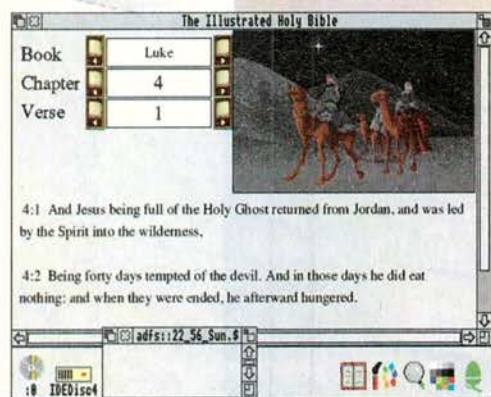
Attica £149

Anglia ITV Schools are to release a host of CDs to complement Key Plus.

The first ones will cover the maps of countries of the world and the counties of Britain. Compiled in conjunction with a major educational map supplier you can plot and then export them into other applications.

Early 1993 will see the release of a Human Biology CD-Rom making use of sound, images, text and music files as well as movie files. This will be followed by Castles reconstructing life in a castle as well as containing a database of all castles in the UK.

This disc will include Replay files featuring the late Tony Gregory an archaeologist well-known for his work in Norfolk and York as well as his appearances on BBC Children's and Anglia TV.



● The easy way to find your references



● Elementary my dear Watson!



● Find out where your forebears landed

Contacts

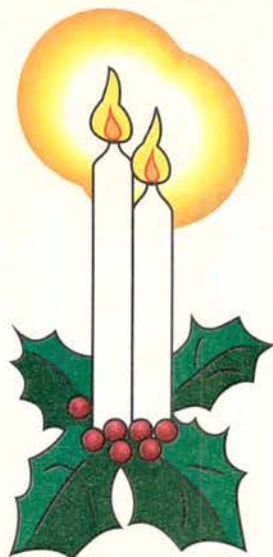
Anglia ITV
Schools
(071-247 5206)

Animated Pixels
(0705 291866)

Attica
(0865 791346)

Cumana
(0483 503121)

Iota
(0223 421542)



ArtWorks



All artwork produced on ArtWorks and included as part of the package. Separated entirely in ArtWorks and printed out to film using the Linotronic 300.



Computer Concepts Ltd

Gaddesden Place, Hemel Hempstead, Herts HP2 6EX Telephone: 0442 63933 Fax: 0442 231632



The art of stat

WE all know that our hard pressed hospitals occasionally mislay patients' records, but our task in this part of the Magnetic Scrolls adventure *Corruption* is to get ourselves totally mislaid, or else we shall end up a little bit dead. In case you hadn't considered the option, this is not the optimum outcome.

If you used my method of arrival – the public transport one provided outside the Monaco restaurant – you get there at 2:40. At all costs you must avoid the solicitous Nurse Stephenson. This means staying put for a while but should not prevent you from examining the adjacent

bed because there are some papers there which will help you to get mislaid.

Nurse Stephenson leaves the ward at 2:47 and the moment she does you should get up and grab those papers and make your way to the area outside the operating theatre. There's a bed there with some bandages on it: Wear them – you are becoming more like the Invisible Man all the time.

Now go to the TV room and get the stethoscope which is on Boris, the cuddly bear, and take your clothes as well. At all costs, wait until you have heard *two* sets of footsteps and then wait once more for luck.

Head back to the bed you found outside the operating theatre and jump aboard. Hang on to the papers and pyjamas, but make sure you have dropped everything else. You are masquerading as someone waiting to be sent to a convalescent home.

Once aboard the ambulance you can approach things in two ways. Either way you should get rid of the bandage and pyjamas, wearing the stethoscope and clothes instead. You can then keep trying to leave the ambulance, according to

Matthew Jacques, in which case you'll end up outside the restaurant: I stuck it out, got rejected by the convalescent home and was ultimately regurgitated by the police.

Now's the time to get busy. Retrieve the car key and the briefcase then make your way to Theresa's office. She will leave it at 3.31 and you can then enter David's office by using the brass key once more. You need to use the stethoscope to unlock David's safe, which is hidden behind the TV set. Put the stethoscope on the safe and keep turning the tumbler until it opens. Grab everything that's inside.

Your next stop is Hughes' office: He leaves for home at about 4.00 and then you are free to weasel your way in using your trusty credit card. Force open his desk drawer and take the document inside – and take the magazine for good measure.

Now you should make your way to the restaurant where the waiter will attempt to fob you off with a story that some other folk have been given your table. Show him the gambling chips you grabbed from the safe and all will be well.

Once you are in the casino, don't

You don't have to be nuts...

The Price of Magik – POM from now on – was one of the adventures Level 9 included in their Time and Magic trilogy on the BBC Micro, and was a sequel to an earlier magical adventure Red Moon.

The evil magician Myglar has stolen the Red Moon Crystal and your task is to find and defeat him, discovering and using spells along the way and solving various puzzles.

Rather than spell out a step by step solution on this occasion, I'm going to deal with the various problems, how they may be overcome, and where important items are to be found.

Detailed mapping will be left to you, though I am glad to say I have a pictorial map and comments from Richard Entwistle to supplement my own researches. You start

off as a sane Novice, but as you begin to use magic your sanity diminishes: The aim is to become a totally insane Archmage as you render Myglar impotent by restoring his sanity. In other words, life works back to front in POM.

In order to utilise spells you have to visit certain locations in order to learn them, but before they can be used you also have to locate and take the object which acts as the focus for a particular spell. You also have to work out what the primary use of the spell is and what it works on best.

You start in a winding drive outside the door to a mysterious house. When I first played POM I was very suspicious of that door and so, when the time came, I entered the house *burglariously* by climbing up the

vine. By doing that, I missed the fact that you can cut a portion of the vine to form a staff – and the staff is the focus for the HYP spell which can be learned by reading the inscription high up in the arched-roofed corridor which is off the white wood corridor.

It doesn't take much imagination to realise that Hypnotise is the spell's function – useful for when you want something to do your bidding.

The formula when you possess the staff and have read the inscription is: *Cast HYP at whatever you want to hypnotise.*

However, there is a small snag – isn't there always – in that you'll need to use magic before you can read the inscription. I'll lead you further into the realms of madness next time.

ing alive

waste time gambling, simply ask the Teller for some chips, or give him the ones you used to gain entry. Either way you'll end up in the Private Room where Charpontier is having a little game with two terrified acquaintances called Park and Seely. He will demand the document you filched a little earlier if you are to stay alive, but stay firm and don't give in.

It's time to go to the police, but make sure you have read all the documents that are now in your possession, because if you ain't read it, the cops don't believe it. Tell Sergeant Russell about David and you will get an interview with the grudging Goddard. You must now deal with things logically, following the clues in the dialogue, or you will

be in trouble.

The order I used was as follows: Affidavit, Cassette, Certificate, Phone Call, Receipts, Ledger, Envelope, Cheque and, finally, Charpontier. Depending on which hospitalisation method you used, the tramp might need to be included, too. Your reward is an offer of recruitment and a chance to get wired up. Accept, go back to Charpontier and await the inevitable: Your reward follows.

Park and Seely are released without charge, Wesley is charged with murder, Charpontier gets the book thrown at him including drug dealing, smuggling and being accessory to a dozen murders. You,

Hatter's Helpline

A while ago I heard from my old friend Barbara Gibb, and she was able to provide answers to Matthew Chatterley's questions on Amnesia. The comment she makes, though, is that Matthew clearly hasn't got very far and she hopes her help won't spoil his enjoyment. That's always a risk, I'm afraid.

The spade is just scenery, really and though you can dig with it in the garden you can't take the bulbs. The computer needs the code-book which can be found once you have got past the dogs (think how to please them) in the coach house.

The machete needs sharpening (I shan't say how) and then can be used to cut the hedge at the end of the maze. The £5 note is used to buy a meal in Joe's Cafe. Count your change as mistakes cannot be rectified once you have left.

public spirited fellow that you are, get done for breaking and entering (oh yes you did, remember?) are found guilty but get a suspended sentence and small fine on account of the aforementioned public spiritedness. Charpontier gets life and dear David gets four years for possession and dealing. Ah well, that's life, innit? Oh yes, you also score 200 points.

Fancy Fish next time?



For the Elite

A word of warning for ArcElite players: Paul Dean wrote as follows. *When orbiting Inbibe I saw a massive collection of cargo (blue on the radar) in an exact diamond formation. Close up they looked like multicoloured pyramids. If you ram them, they explode. When I tried to scoop them they disappeared as normal but did not appear in the cargo hold.*

They ain't cargo Paul, they is space beacons and ramming or scooping is naughty. They occupy space in your cargo hold and you need to jettison a canister of cargo for every space beacon scooped up. If you don't, and continue scooping them up until they fill your hold, you will no longer be able to scoop anything more up and you won't be able to get rid of them either.

Paul also asks how many Good Shooting Commander congratulations does he need to graduate from Mostly Harmless: A lot, mate, an awful lot. If you don't cheat – and I hear there are some fancy commander editors floating around – there is only one way to earn ELITE status – the hard way.

Ray Briddock dropped a line with a few observations and a query about trading in furs. He says, rather plaintively, that if he buys three or more tons of furs he becomes an offender. He doesn't want that, he just wants to trade in furs. The game is green,

man: Furriers are frowned on.

Ray also comments on the fact that some ships are now able to catch him up, whereas on his old version of Elite this was not so. Quite correct. Mind you, once you have a Military Laser, who wants to flee anyway? If you upgrade to the Gold Edition of ArcElite you get a set of cards giving data on the spaceships to be encountered.

I had a long letter from James Garvey, but will only pass on one item: *As one of the test pilots for Karma I don't really see Elite having a great deal of competition, it truly is a game for all seasons.* I guess Karma is completely different, has anyone else any thoughts on this?

I've had a plaintive missive from The Hague in the Netherlands. Commander Wowbagger wonders why he hasn't triggered the First Mission on ArcElite when he's acquired the requisite rating. The answer is fairly simple – with only Cr. 35,000, you are too poor chum – GalFam can't afford to utilise your services. You must amass moolah, mates, or you won't see anything.

He also wonders why the game was not completely rewritten. Again, the answer is fairly simple: Clive and Warren weren't allowed to. ArcElite had to stay completely faithful to the original concept, so as not to tread on the toes of Elite 2 which is now

appearing on a range of other machines.

Time for a few tips from yours truly. You can actually sell contraband goods, provided you have scooped them up in combat, and provided you have earned enough brownie points with the lads at GalCop HQ. Best bet, though, is to sell in dribs and drabs, checking your status each time.

Personally, I don't mind being an Offender for one transaction only: I then launch, dump any contraband left and go and bash a baddie. Then I'm squeaky clean once more.

Don't forget what I have said about amassing wealth: My current status is Dangerous, I have over 200,000 credits and I want lots more. My own gameplay is as follows. Currently I am in Lara'tan Galaxy and I am going to try and visit every single planet. I launch and head for the sun so that I can acquire fuel, combat points and cargo.

Stooging around the sun usually gets you bounced by baddies and then you can bounce back. When the cargo hold is full I hyperspace to my destination, sell my booty, choose a new destination and start all over again. This method produces a Good Shooting Commander just about every trip.

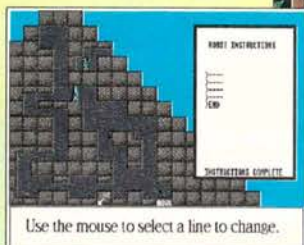
Finally, a query from Graham Howell: Is there a second Mission on Elite? Yes, there is. Keep plodding on and you'll come to it.

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Age Range
8 - 9 yrs



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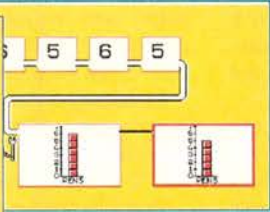
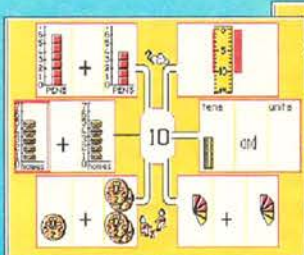
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Connected by theme

ANYONE with Connections from NORICC (091-270 0424) will be interested in the three latest theme packs. Christmas Ideas is designed for children with learning and language difficulties, though it is also suitable for the early primary years.

With two overlays for a Concept Keyboard each child is encouraged to explore pictures and words through touch. Three levels on each overlay enable a child to build a progressive story in stages. A map of Santa's world links the theme of Christmas Stories around the World.

Less topical are **India** and **The House and The School**. India comes with three overlays and

investigates different topics from rural India to migration. The House pack overlays concentrate on the concept of time. Starting with a child's own environment and experiences the exploration moves from the present to the past.

New Connections theme packs in the pipeline are **The Tudors and Stuarts**, **Evacuation** and **Aztecs**.

Multiple senses

Using the 8-bit BBC machines SpaceKraft (0274 581007) have designed multisensory rooms for special needs. Their product include programmable control units which stress the need for pupil interaction.

For instance, the Bubble Tube

allows children a choice of colour selection and bubble flow using interchangeable switches via a Light Guide.

More resources

Sherston Software (0666 840433) have published more resource packs of photocopiable materials for teachers – saving hours of preparation time. Prices range from £10.95 to £13.95.

The new packs are **Save the Animals** for Animal Rescue while **The Wizards** can be used with both Wizard's Revenge and Wizard's Return. Fleet Street Phantom can be given a new lease of life with **Fleet Street Phantom Strikes Again**.

Noot and animated worlds

4MATION(0271 25353) are about to release Noot on the world. It's a complete animation package that consists of six disks including the Noot and NootPad applications, six animation files, tunes and an illustrated manual all for £45.

Noot is an open package usable with all ages and allows children to explore the animated files from 4Mation or those created yourself.

The animation files are titled Playroom – there are 10 toys in the playroom and when they are named they will go into an animated sequence.

A particularly nice feature is that the items will respond to a variety of names. For instance the engine will respond to

train, loco, locomotive, steam engine, steam train or steam locomotive.

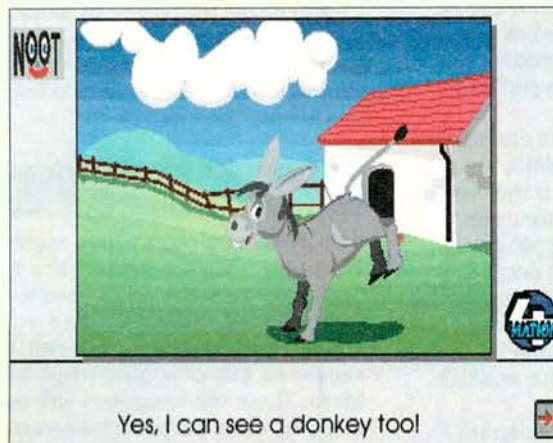
Dweek and Dweep are two lovable creatures who respond to *This is Dweek*. *What can he do? Dweek can...* and so on.

How it Works illustrates the working of a variety of different devices from a door lock to a human heart, while Power shows the inner workings of engines, motors and their constituent parts. Finally Farm provides 14 animals and 7 farm scenes with music and digitised sound effects.

All the Noot animations can be paused and then played frame by frame either backwards or forwards.

Creating your own files is simplicity itself. The NootPad puts a filofax on screen which is a great help in the methodical setting up of your own files. The pictures are created in Draw or you can use pre-drawn drawfiles such as those available in clip art.

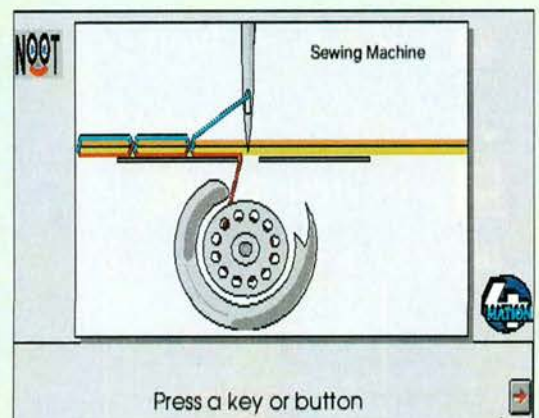
Drawfiles are then dropped on to the NootPad where you can set options to control how the picture is animated. The abundance of Tracker files available in the public domain or commercially can also be used to accompany the animations.



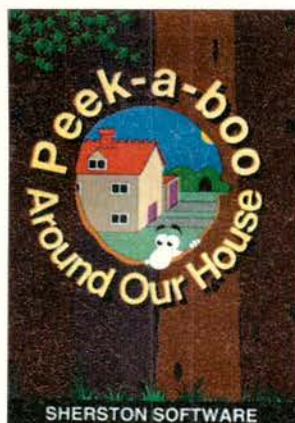
● Noot gives you animation on the farm ...



... or in the playroom for youngsters ...



... as well as more sophisticated applications



I can see you . . .

Rog Frost goes house hunting with some superb children's games

PRODUCT SPOTLIGHT

Product: Peek-a-Boo – Around Our House and Peek-a-Boo – Opposites
Price: £21.50 each
Supplier: Sherston Software, Swan Barton, Sherston, Malmesbury, Wiltshire.
Tel: 0666 840433
Requirements: 8-bit machines (B, B+, Compact and Master)

NEW products from Sherston are always eagerly anticipated, whether for the newer range of 32-bit computers, or, as in this case, for the old 8-bit BBC Micros. Not only do we expect good graphics and sensible sound, but well thought out and structured ideas which provide good learning experiences for the intended youngsters.

The Peek-a-Boo programs are aimed at key stage one youngsters or to give them their old name, infants. They involve a journey of discovery into worlds which are familiar to most youngsters.

Around Our House allows children aged five to seven to travel around a house and its environs – garden, garage, shed and so on. The graphical journey is undertaken by use of the computers arrow keys, or Concept Keyboard. Attractive

overlays are provided for A3 and A4-sized versions.

You steer an arrow around the current location and press Return to find out about the object selected or it may initiate some action or do nothing.

The action starts outside the house and it is possible, for example to point at the chimney. The word *chimney* is displayed on screen, in the rounded font that Sherston use so well, and at the same time smoke appears. If the smoke is selected the word *smoke* can be seen as well.

Some areas of the house have lots of actions. A visit to the garage is well worthwhile – the car does a number of things that will entertain young users. The attic, too, is a real treasure trove of children's toys. Here there is a chance to play with a train set, doll, jack-in-a-box or do some magic painting. Suitable words appear all of the time to complement the actions.

Here and there, a nursery rhyme can be played – like other things they have to be discovered. Apart from use in a project on homes or houses, the package could also be used as a resource for work on nursery rhymes. The product can also stand alone. It is a perfectly valid activity.

Around Our House is essentially about early language skills, but other areas come into it too. The whole exercise could, for example, be considered as a mapping task. Other activities, which occur as a natural part of the program, involve colour, sequencing and music. There is also some hidden curriculum. It is Dad, for example, who bathes the baby.

When I first ran the program I was baffled by the row of question marks which appear. Sometimes



● There are simple but effective graphics throughout

there are lots of them and sometimes very few. I should, of course, have read the manual. They indicate the number of items to be found in the current location.

Children seem to be motivated by the question marks – they want to get rid of them all.

Apart from the program and the overlays, the pack has the usual first rate teachers' book and a set of sheets which show the words used in the program.

Opposites runs in a similar way to **Around Our House**, but here we move into a fantasy world – Goldilocks and the Three Bears. Children take the part of Goldilocks and move around her house and garden before moving off to the woods and the bears' home. Within

● Adequate teacher options are provided



Summing up

Both of these programs are superb, although I have a preference for **Opposites**. They live up to Sherston's well founded reputation and once again show that a quart can be squeezed out of a pint-sized BBC Micro. These old computers will continue to have devoted followers if Sherston can keep producing programs of this quality.

each location an arrow can be moved. If a live item is found, a word is displayed just as in *Around Our House*, but now an opposite situation can be displayed. The action starts in the bedroom. It is night time. The opposite of night is day and so daytime can be displayed enabling Goldilocks to get up and start her journey.

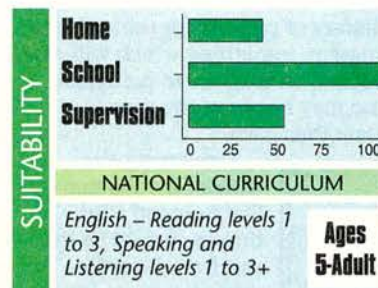
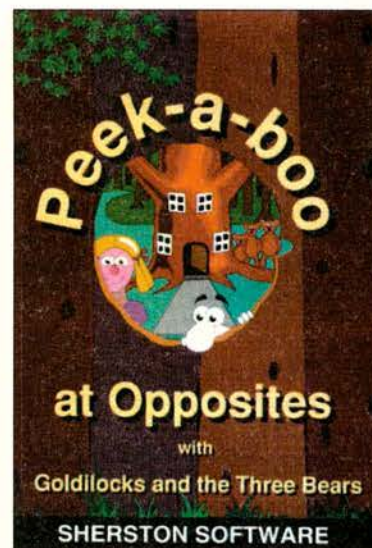
All sorts of opposites are considered along the way. Some relate to position – above or below, near or far – while others relate to size – big or small.

The seasons of the year may not be strictly opposites but the scene in a wood can be displayed for each of the four seasons. Once in the bears'

house a third concept is introduced. Porridge is either hot, cold or just right. Beds are either soft, hard or just right.

Opposites is primarily an English program, but involves mathematical and scientific concepts. The hidden message within the program concerns conservation.

It is, obviously, expected that users of these programs will be young but they will need very little help to manage playing the games and will get most from using them in pairs or small groups. A nearby adult would obviously be a benefit to help youngsters with any words or concepts which they find difficult.



Word power

Frank Jukes takes a look at two programs to improve reading skills

PRODUCT SPOTLIGHT

Product: *Precision and Wortgut*
Price: £20 for *Precision*, £25 for *Wortgut*

Supplier: New Era Software, 204 High Street, Woodville, Swadlincote, Derbyshire DE11 7DT.
 Tel: 0283 812818

FOR anyone looking to help readers improve their skills either at home or in school *Precision* from New Era Software may be just the thing to provide that little extra motivation.

An electronic version of the hallowed flash card, the program will be of most help to those at the very earliest stages of reading or to older children who may have special needs.

The application consists of three

basic elements, the program itself, pupil files and item or word files. Additionally, picture files may also be used to help with the recognition of words.

Used initially to teach groups of words the program cycles through a previously prepared list of words presenting each in the list one at a time in a large clear font.

In this learning mode the supervising parent or teacher clicks Select to indicate a correct attempt at the word and Adjust to indicate a mistake. As each new word is added those already presented are repeated with it in an alternating sequence.

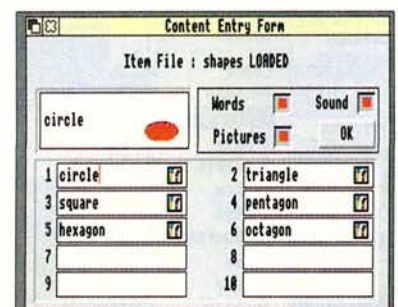
Colour coding assists the learning process. Blue indicates that the adult should say the word, black or green that the pupil should repeat it and red shows that a mistake has been made. Three reds returns the

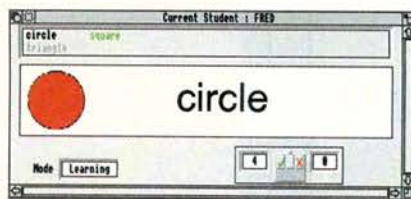
screen to blue for a spot of reinforcement.

One disappointment is that there appears to be no outside control over the order in which words are displayed. It would be helpful if the selection could be made intelligent in order to emphasise those the pupil found more difficult.

Once the learning phase has been completed the program moves into a test sequence during which the pupil is required to read all the words one after another. Scoring is once again via the mouse and an accuracy chart is automatically compiled for saving or printing if

● Assessing the content





● Learning mode ...

➤ required.

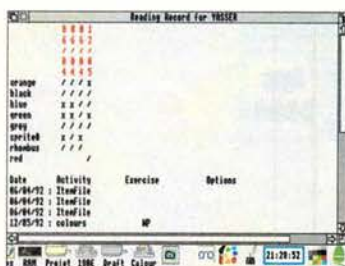
To help with the identification of more difficult words, or to increase motivation, small pictures may be included next to all or just some of the words.



● ... or testing mode

This could potentially be very helpful, especially as they may easily be turned off.

New Era intend to develop a library of pictures for use with the program, something which will ease the load on teachers in particular who may not have the time to create their own.



● How did you fair?

Something else which New Era may like to spend a little time on would be the exit from Precision. For some reason or other using the program slowed my A5000 down to a very pedestrian pace and it didn't return to normal even after quitting.

Pressing F12 for the command line and then Return to move back to the Desktop was also a problem as the program crashed out with an error.

GCSE students of German may find *Wortgut*, a German/English, English/German dictionary of some 2,500 words quite useful.

Not only does it provide the usual linguistic equivalents of a paper-based language dictionary but most of its entries also contain additional information about the German

● Find your way around in German/English



● Even the control buttons are in German



words along with a line of grammatical help and another to help show how the word is used. As if that was not enough it may also be expanded to allow pupils to build up their own personalised dictionary of information and phrases.

To help in choosing words new to the pupil – perhaps when working on a homework assignment – the dictionary may be accessed through topic headings and sub-headings. These groups may be selected and then used in exactly the same way as the full dictionary.

Group and sub-headings – and all menus – are context-sensitive, meaning that German is used in them whenever it is appropriate. So instead of Delete we see *Weg* and instead of Quit we see *Ende* – a nice touch.

Printing groups of words and/or the information about them is also a useful feature and is achieved quickly and easily as is exporting words to other programs. To do this a word may be dragged from *Wortgut* into the other program or, alternatively, adjust may be clicked with the word in the entry window. This transfers it to the caret's position in the other program.

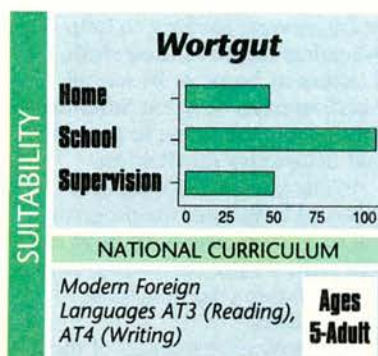
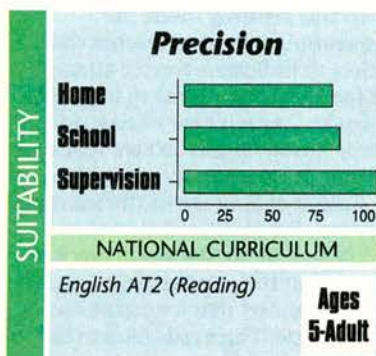
Well, dragging into Edit and Impression – click on Cancel if you are offered the CSV loader – worked fine but I could not persuade the Adjust-click method to work with

either program. To be fair, though, the manual did warn that the methods should be checked with other programs.

Summing up

Used alongside more traditional methods of teaching reading Precision could be quite an asset especially as it can be tailored both to individual pupils and to particular reading schemes. It also could be used at home and at school with equal success.

For any student who is serious about choosing the right word, and using it correctly – and for any parent who would find it impossible to provide that word – *Wortgut* could be a worthwhile investment as would its sister programs *Lexique* and *Palabra* for French and Spanish. *Auf Wiedersehen*.

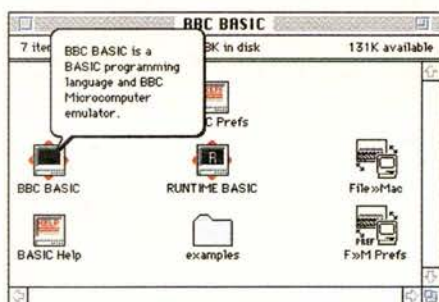


BBC BASIC Version 3

Programming language and Emulator for the Apple™ Macintosh™

Combines the power of the Macintosh ...

BBC BASIC 3 takes advantage of the advanced features of the Macintosh, and System 7, to provide an ideal environment in which to develop, test, and run your BASIC programs.

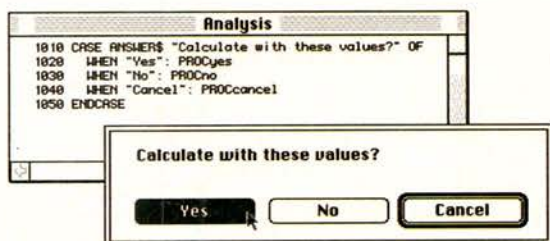


Balloon help provides instant information about the menus and dialogue-box options.

Save Graphics option saves the BBC BASIC graphics screen as a PICT file that can be loaded into other programs.

Runtime BASIC utility converts your BASIC programs into stand-alone double-clickable Macintosh applications.

Macintosh-style interactive editor provides a scrolling view of program listings with convenient cursor or mouse editing. You can work with any font available on your system and you can display keywords highlighted in bold for easy reference.



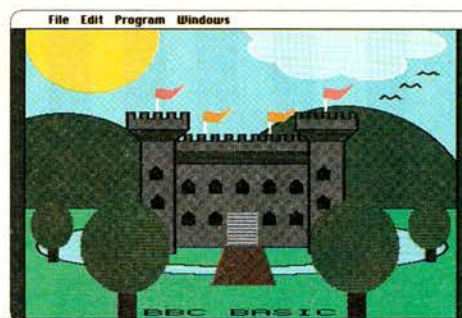
Macintosh Toolbox interface allows you to define your own menus, dialogue boxes, and scrolling lists using convenient BASIC keywords, and use the standard file dialogues for opening and saving data files.

Dynamic tracing and debugging lets you run or step through a program, highlighting each statement as it is executed, and you can display the values of any variables or expressions.

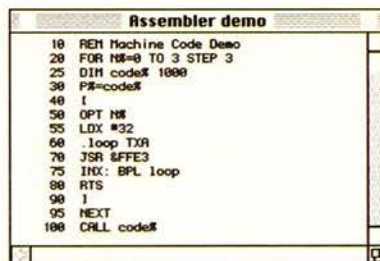
Comprehensive help system gives you instant information on keywords and operators, without interrupting what you are doing.

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BBC BASIC for the Macintosh gives you access to the foremost educational programming language in the UK, with the ability to run many programs originally developed for the BBC Microcomputer.



Emulates BBC Microcomputer graphics and screen modes, including Teletext. Work in full colour on an LC or Macintosh II, or grey shades on a monochrome Macintosh.



Built-in assembler and 6502 machine-code interpreter allows you to compile and run 6502 assembler programs, or machine code which you have loaded in directly.

Full emulation of the BBC Microcomputer Operating System including all the standard system calls and vectors, OSBYTE, OSWORD, *FX calls, VDU codes, function keys, sound, and DFS/ADFS commands.

Includes File>Mac transfer utility to transfer programs and data files to or from an Acorn Archimedes or BBC Microcomputer.

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Learning can be fun

Shelley Birchenough put the latest in the Fun School series for the Archimedes through its paces



Shelley Birchenough qualified as a B.Ed. from Portsmouth Poly in 1980 and was a primary school IT Co-ordinator for several years.

She has taught in the primary sphere as well as teaching Maths, English and Drama in the secondary environment. She now specialises in pre-school education.

PRODUCT SPOTLIGHT

Product: Fun School 4 – Under 5s, 5-7s, 7-11s
Price: £24.99 each
Supplier: Europress Software, Triton House, Adlington Park, Macclesfield SK10 4NP.
Tel: 0625 878888

I MUST confess to being of a Fun School addict – but where's the robot gone? Much as I like Sammy the Spy on the 7-11s disk – it was sad to discover Robby in retirement. Still, like all aspects of the National Curriculum, no sooner are you familiar with something than it changes and the latest Fun School does have Attainment Targets in mind.

Taking a look at the programs as a whole, one new innovation is a story to link the individual programs on each disk. It's a nice idea but would have worked better if it had been on screen rather than in the documentation.

Of the three, the Under 5s is my favourite. Apart from the sheer charisma of Teddy, the programs are



● Ooops...not such a good idea on the 5-7s

● Excellent concept for counting on the under 5s

varied and interesting with many appealing traits.

Under 5s

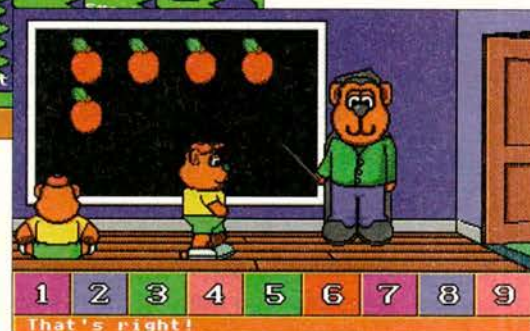
Addition is my favourite program with simple counting of static objects. I especially like the number line at the bottom of the screen, as many children will begin a one-to-one correspondence using it.

Level 2 shows two groups of objects with corresponding numbers for the child to add. Unfortunately, at times, the two are not aligned very well to show clearly the relationship. Level 3 moves on to number bonds from 1 to 9 using a fresh approach to something as well used as counting.

Teddy Paint is supposed to encourage children to explore the keyboard to discover the function of different keys which will draw a range of shapes and pictures. The mouse is also required to position them on the screen.

There is a help command but there is far too much for such young children to remember without becoming frustrated. A simple hard copy of the help pages would have enabled them to make full use of the wonderful sheep, sandcastles and other icons stored away.

Fun Train is for beginners at reading and is aimed at encouraging matching words and pictures. In various combinations a picture and word, or one of either appears at the



top of the screen. Other words and pictures are pulled around on a train and you select the one that matches.

Unfortunately, from time to time the graphics do not always match the description of the task.

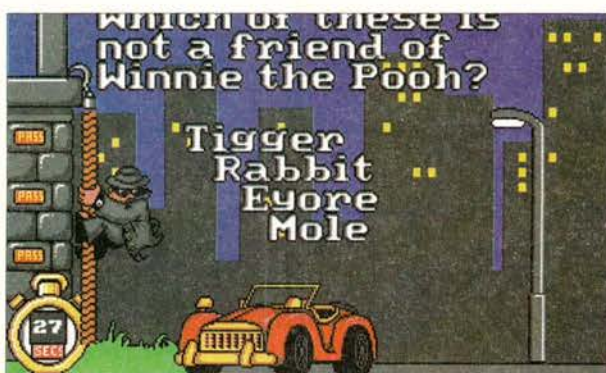
Moving to Teddy's House we find a program which attempts, and fails, to teach names of colours. A very fussy drawing of a house is provided for the child to paint. Expert mouse control is needed as some screen areas are tiny.

This, of all the programs, was the most successful at causing tantrums. At higher levels children are asked to paint specific parts of the house in named colours – this needs either good reading skills or a high level of adult interaction.

Karaoke is the program children will love and adults hate. Well known tunes are played with the words displayed, complete with bouncing ball, for children to sing along to.

Children are then given the chance to play the tunes by pressing the keyboard – the correct notes are always played, it is the rhythm that is being looked for. Finally, tunes stop in mid-flow until the first letter of the next word is pressed. This is a

● Some pretty hard general knowledge in Spy Quiz



THE DRIVING FORCE



Winner of the Best Printer in the recent Computer Shopper awards, the Canon BJ10ex printer has revolutionised the small printer market. It offers 360 dpi, near laser printer quality, on plain A4 paper, in an incredibly compact and lightweight housing. Unfortunately the existing RISC OS printer drivers, based on the standard Acorn Drivers, have definitely been in the slow lane, locking your computer up for the entire print process, often up to ten minutes per page.

Computer Concepts have now created a set of RISC OS printer drivers, called TurboDrivers, that are optimised for the Canon BJ10ex printer. The result is the perfect combination of budget printer and RISC OS printerdriver, able to print full 360 dpi high resolution pages at a quality superior to that available from any dot matrix printer.

The TurboDrivers not only print the pages faster, but give the control back sooner - up to ten times quicker. The table below shows the time taken to print and the time the computer is occupied for some typical example pages.



Shows optional sheet feeder attached to printer

The TurboDrivers print faster on an ARM2 machine than traditional drivers on an ARM3 machine. In addition they can send the print data to disc and then print from disc in the background, so the computer and almost all memory remains free for other uses, while the printer gets on with the printing.

RISC OS
Turbo
D R I V E R S

A complex page of text & graphics

2 pages text in different fonts

One complex page from !Draw

Standard Driver

Time to
complete

521 seconds

753 seconds

643 seconds

TurboDriver

Time to
complete

199 seconds

283 seconds

261 seconds

Time to get
control back

70 seconds

64 seconds

187 seconds

All times in seconds from a standard ARM2 Archimedes with 4MBytes RAM and hard disc. Times would be faster for an ARM3 based machine.

NEW LOW PRICE

BJ10ex printer & drivers £229.00+£10.00 carriage+VAT (£280.82) Optional 30 sheet feeder £48.00+VAT (£56.40)

TurboDriver software & printer cable £49.00+VAT (£57.57)

Compatible with all applications that use the RISC OS printer drivers and all Archimedes models.

 **Computer Concepts Ltd**

An irritating problem is that there's no continuity in the method of control on the programs, flitting between keyboard and mouse



novel program which children really enjoy.

The final game returns to maths for its inspiration but unfortunately, contains some rather confusing concepts. Father Bear is reading one of a numbered set of books to his children. When the correct book number is identified, a baby bear will go to sleep.

However, the bears go to sleep in a random pattern when it could have been used to reinforce the concept of counting or reading from left to right. Identifying the missing digit is a complex demand for this age range without the series being muddled as well.

At higher levels more than one book is missing from the set so that trial and error involving higher or lower hints is used. Many young children fear failure and this could easily destroy confidence.

On the whole though, the Under 5 disk contains good programs as long as a high level of adult involvement is possible.

5 to 7s

The disk for 5-7s is not so good.

Library is designed to develop alphabetical sorting skills, starting well with simple words to put in order. Later children are given the unusual task of sorting books by title rather than by author which seems odd. Also strange is the phrase *Sort by word* when it actually means *all letters*.

Basketball is the type of program to help pass the 11 Plus. By correctly completing a series of letters or numbers, children help Freddy score a goal which is an overlong graphics routine. Some problems are very complex. There is also a missed chance to include ethnic minorities in the crowd.

The **Shopkeeper** is designed to

teach coin recognition and money calculation. The recognition part is let down by the value of the coin always appearing separately, along with no way of knowing how many of a certain coin are available to use. Otherwise it is a simple task of adding sums of money, choosing coins and giving change.

Log Cabin also has maths in mind, with children selecting the log which bears the correct answer to a given sum to help Freddy build his cabin. The members of the frog family who emerge from the finished home deserve a mention as they are the nicest graphics on the disk. For some unknown reason, level 4 is easier than 3.

Opposites is a lovely idea where both reading and vocabulary skills are used. Some ambiguity is present – *skilful* has the choice of *stupid*, *simple* or *careless* with only one response accepted. Many of the words are well above the age suggested.

The final program called **Typing** is just that. At the easiest level, children merely type at random to help the frog evade a hungry crocodile. At higher levels they type in letters and then sentences. It is a challenging program but with practice children will quickly improve and subsequently be able to input responses in other programs more efficiently.

7-11s

The 7-11s disk contains some very original ideas. Again, the programs are meant to follow a story. It doesn't really work but the programs can be enjoyed for their own sake.

Proportions is quite a weighty mathematical task, with the answers required in decimal, percentage and fraction form from a varying number of given objects. Careful observation is also required in a limited time.

Spy Quiz is a simple test of general knowledge and spelling, although not all the questions are that simple. Some of the science-based questions are very demanding for a game against the clock.

A second mathematical-based program, **Exchange Rates**, is fairly straightforward with the introduction of a limited use calculator to convert one currency to another.

Timetable continues the maths bias and contains calculations using time as well as basic tabular interpretation. Unfortunately, it

occasionally gave the same correct answer twice in multiple choice without accepting both as being right.

The final two games are very innovative. **Spy Travels** is geographically based with the object being to locate progressively more specific worldwide locations. However, at the lowest level the task is merely to fly at random around the globe, while at higher levels the map is such a small scale that it's extremely difficult to position the cursor.

Desert Dates is also progressive but relates to dating events, beginning with the century and ending with exact years. All the programs on this disk automatically progress through levels and, on completion of the highest, return to the lowest.

Overall

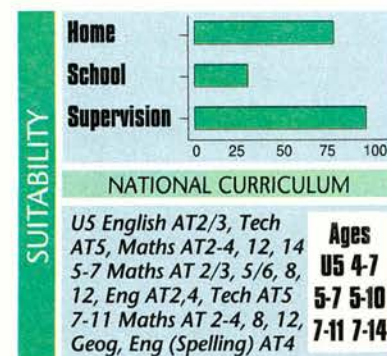
An irritating problem is that there's no continuity in the method of control on the programs, flitting between keyboard and mouse. And progression to the next level is sometimes automatic while on others it must be requested.

However, my major criticism is that it is often easy for the child to keep trying, or even just pressing one key, until the correct answer is reached with no real way for parent or teacher to keep a check on what has happened to assess how competently the child worked.

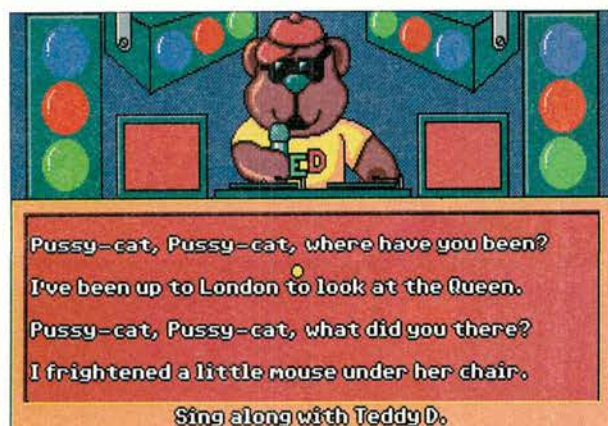
And the overall ability level of the programs seems to be pitched rather higher than the suggested age ranges, with some of the Under 5s being more suitable for Year 3 or 4.

Summing up

All three disks have the same fault of inconsistency of input methods and of having no record as to how well the child performed. This aside, the impression of Fun School 4 is a good one, proven by the a whole range of children's enjoyment and progress.



● It's Karaoke time with master blaster Teddy B



Help your child to a brighter future - with the best in educational software

fun school

TEDDY'S KARAOKE



Sing along with DJ Ted to popular nursery rhymes.

TEDDY'S BOOKS



Select the correct number of Teddy's bedtime book.

TYPING



Type the correct letters and words and save Freddy from the crocodile.

SHOP KEEPER



Shop with Freddy and his friends choosing coins to pay the bill.

DESERT DATES



Study historical events to find the secrets of the pyramids.

EXCHANGE RATES



Change Sammy's money at the international exchange desk.

"Fun School 4 zooms to the top of the class. Three brand new packages combining the essentials of the National Curriculum with beautiful graphics, cleverly animated rewards and stimulating sound keep your children engrossed while they learn.

Teddy for **under fives**, Freddy the Frog for **five to seven year olds** and Sammy the Spy for **seven to eleven year olds** provide **SIX** original stimulating programs in every pack. Plus, the carefully designed levels for each program encourage your children to have fun and learn at their own pace - and ensure they get the most from Fun School 4 and keep coming back for more."



FORMAT	Amiga	ST	PC	C64		Spectrum		CPC		PCW		Archimedes
				Tape	Disc	Tape	Disc	Tape	Disc	3"	3 1/2"	
PRICE £	24.99	24.99	24.99	12.99	16.99	12.99	16.99	12.99	16.99	24.99	24.99	24.99

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europress
SOFTWARE

Europress Software Limited, Europa House,
Adlington Park, Macclesfield SK10 4NP

Rodents on the right track

PRODUCT SPOTLIGHT

Product: TrackMan Portable trackerball
Price: £45
Supplier: PEP Associates, 34 Tiverton Way, Cambridge CB1 3TU.
Tel: 0223 212251

Product: A4 Genius Hi-Point Trackerball
Price: £49.95
Supplier: Atomwide, 23 The Greenway, Orpington, Kent BR5 2AY.
Tel: 0689 838852

A trackerball does for the A4 what the pop-up toaster did for sliced bread

WHEN Acorn designed their A4 portables they made the bizarre decision to include as standard a mouse with a lead one and a half metres long – not the most convenient device if you are working on the London Underground in the rush hour. When your only other option is to use the FN key and the keyboard, you start wishing for a better alternative.

A trackerball is an answer to this wish, removing the need for a relatively smooth surface – even if only your own leg – to move the mouse. Acorn are leaving it to third-party suppliers to provide them.

TrackMan Portable

A trackerball does for the A4 what the pop-up toaster did for sliced bread. Think of a mouse shaped like a capital D and turned upside down, with a button on either side of the ball and also one on the curved

Bruce Goatly takes a look at the alternative mouse scene

edge of the device. You use your thumb to rotate the ball and to click two of the buttons, while the other button is for your index finger.

The TrackMan (pictured opposite) was designed for use on PCs and plugs into the serial port. For the A4 it comes with a special adaptor cable

that plugs into both the RS232 and mouse sockets.

A driver module also has to be loaded to allow the device to be seen as a mouse by the operating system.

The early version of the driver sent to me didn't quite interface correctly – it inhibited applications like Impression that normally allow dragging the pointer off screen

from so doing. The trackerball can be used by itself standing on a surface, or it can be clipped with a special adaptor to the left or right of the case, next to the keyboard. The clip is carefully designed to allow access to the floppy disk drive and the hardware is easily adapted for left-hand use.

Each orientation of the trackerball calls for a different configuration linking rotation of the ball to pointer movement and the functions of the buttons can be altered to suit your convenience. Both changes are made with special configuration software.

Perhaps not surprisingly, you have to learn to re-coordinate your fingers and thumbs. In fact it's rather like starting with a mouse all over again, though acclimatisation doesn't take long. Mastering it with sufficient accuracy for use with a drawing or painting package would be more awkward, I suspect.

At first I found accurate control of the pointer difficult to achieve because removing my thumb from



● The Genius HiPoint unfortunately covers the floppy disk slot

the ball to press one of the two buttons allocated to the thumb resulted in a slight shift of the pointer. This was eased by reducing the mouse speed using the A4's !Configure application.

From an engineering point of view, the ball seemed a slightly loose fit but also a little sticky at times, resulting in jerky pointer movement which needed getting used to.

The adaptor cable on my review model looked rather preliminary and the integrity of the connections was slightly suspect, occasionally causing unexpected drag operations unrelated to button presses. The production version is tidier and more robust.

The default buttons for Select, Adjust and Menu are mainly sensible for right-handed use, and Select-dragging is easy. However, Adjust-dragging is awkward because the thumb is expected to simultaneously hold down a button and rotate the ball, which calls for a change of fingering.

A hint I was given was to use the keyboard to emulate Adjust with FN-E, which is a useful compromise. Alternatively, reconfiguring the buttons to make things easier is an option, anyway I doubt that this problem is unique to this design.

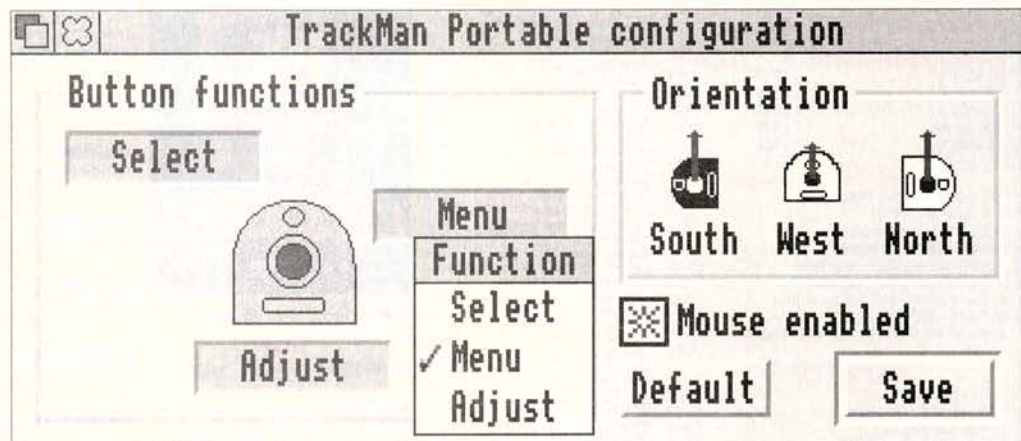
Genius Hi Point

THE HiPoint trackerball comes in a box describing it as a product for the PC, with a small label indicating that it has been modified for the Acorn A4. As well as the trackerball and a clamp, a soft carrying case with two pockets is provided.

The device itself is shaped like a pie wedge with a rocker-type switch on the curved edge, which acts as Select at one end and Adjust at the other. In the corner of the wedge is the Menu button. The single cable plugs tidily into the mouse socket.

The ball action is smooth and positive, giving good control over pointer position and movement. The buttons are light and easy to use. The *serving suggestion* on the box shows a hand with the index finger curled around the Select/Adjust rocker switch and the thumb tip on Menu.

In real life I found it easier to use



● Changing the Trackman's button definitions and orientation

the second finger for Select and Adjust, allowing the index to rest on the top of the device to support the hand a little, and operate the Menu button with the first joint of my thumb.

No doubt it's a matter of taste, and anyway the buttons quickly felt natural, even for Select-dragging and Adjust-dragging.

The clip mount has a good solid feel to it and would be unlikely to come adrift in normal use. The problem with all trackerballs on the A4 is that the clip has to be attached to the weakest part of the case if the lid is to be closable.

The HiPoint's clamp is described as *breakaway* but I hadn't the courage to test this.

Unfortunately – and most inconveniently – the clip covers the floppy disk slot. For me this severely limits the usefulness of the machine as I am continually transferring files by disk.

Although the manual says that the trackerball can also be used by itself in the palm of the hand, I could find no comfortable way of gripping it and at the same time pressing the Adjust end of the rocker switch. This meant that Adjust-dragging was out of the question for hand-held working.

The manual describes the design as being suitable for left or right hand use, and indeed the ball and clip can be assembled in two ways for this. However, the lead is far too short for the clip to be attached to the left of the machine, so left-handed operation is an impossibility.

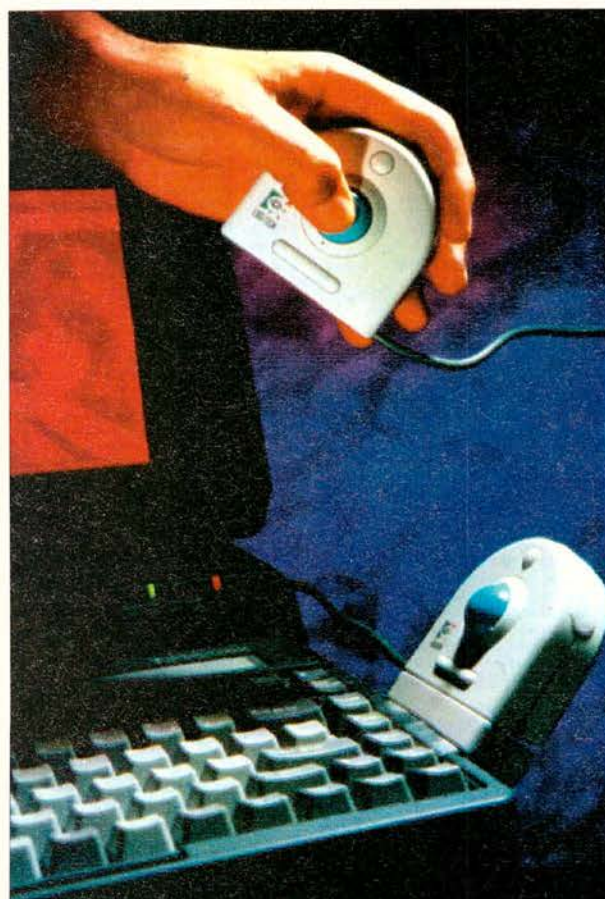
Even if the lead were longer, when the trackerball is mounted on the left of the machine there is no way of altering the orientation so that upward rotation of the ball moves the pointer upwards – instead the pointer goes sideways. That's reminiscent of those games where eating the wrong power pill reverses your controls.

Summing up

The trackerball meets a vital need in portable computing, and all credit to both companies for bringing one out so soon after the A4's launch.

Despite a few niggles the TrackMan works competently and I'd find one very useful for computing on the move. I liked the design of the HiPoint trackerball element and, for right-handers like me, I would recommend it strongly if the clip didn't block off the floppy disk drive.

It won't be any use to left-handers until it is given a longer lead and some software to configure the orientation – as described on the box for the PC version.





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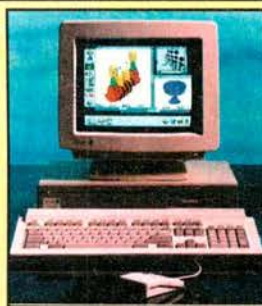
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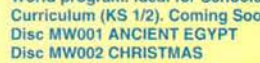
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Diary £10 + VAT

Somewhere in Lancashire, a telephone rings:

Leslie: Hello?

Me: Hello, I'd like to order a takeaway.

Leslie: You want to order a game? Well, Pesky Muskrats is pretty excellent ...

Me: No. I was thinking of a chicken korma with egg fried rice and an onion bhajii.

Leslie: Look, you stupid gimp, this isn't *The Rose of India* my name is Leslie Daws and I'm the graphic artist for Coin-Age, which is a software house

for the Archimedes, and a jolly good one at that.

Me: Golly!

(Reilly's mission for this month was to order an Indian take-away meal and to interview these very same people! Spooky!)

Leslie: Do you

want to go away now, sonny?

Me: Well actually, I'm from *Acorn Computing* and I'd like to have a chat with you.

Leslie: Ahem. So sorry Mr Reilly. I'll put you through to Andrew Stanworth, our coder.

Andrew: Hello?

Me: Can you please tell me about your new game, *Paradroid 2000*.

Andrew: Yes.

Me: Well?

Andrew: Ahh...well. *Paradroid* was released on the Commodore 64 yonks ago, by a chap called Andrew Braybrook. It was programmed for the Amiga about 18 months ago, but the company marketing it, Hewson, went bust. By all accounts though, it was a jolly good game. Braybrook was a top programmer, writing such classics as *Uridium*, *Rainbow Islands*, *Fire and Ice* as well as *Gribbly's Day Out*.

Me: Sounds familiar.

Andrew: It should be, we've converted that to the Arc as well. And when I say convert, I don't mean that we simply translated every line of code. Sure, we port the charts and other data-related items, but at Coin-Age we believe in pushing the Archimedes to its limits so we rewrite much of the code to take advantage of the Arc's superior capabilities. This gives you a faster game with larger playing areas amongst other improvements. That's why we reckon *Paradroid 2000* will kick butt.

Me: What exactly is *Paradroid* about?

Andrew: You could call it *A thinking man's shoot-'em-up*. Strategy, mixed with a bit of good old mindless blasting. The latter part should suit you.

Me: Why thank you. May Mr Scenario come out and play?

Andrew: You're learning. The game is set on seven freighters in space, run by mechanoids. These mechanoids are a few circuits-short of a function-mal, so it's your job to destroy them. Easy enough.

Me: What role does the gamester play? Hunky mercenary? Mysterious

clearance you have for the droid library.

Me: The what?

Andrew: The droid library is accessed via security consoles at various points in the game. In it you can find out about your adversaries and there's loads of info about the droids and their individual capabilities.

Me: How big is the game?

Andrew: Very. There are seven freighters, each with up to 16 decks. And a deck is an entire level. The game isn't quite finished yet, but it

should be ready for mid-November at the usual price of £25.99

Me: Any other news?

Andrew: We've started a disk-based magazine called *Power*. It's mainly aimed at games

ninja? Maybe a cute flumpsicle?

Andrew: Nope, you're an *Influence Device*.

Me: Excellent!

(We hear pages being frantically flipped as The Boy Reilly attempts to find Influence Device in the dictionary. Unsurprisingly, he fails.)

Me: Er, what is an *Influence Device* exactly?

Andrew: It means that you are a little droid yourself, with meagre capabilities. You have to try to interface with droids you meet before they kill you.

Then you move on to the *Transfer Stage* where your techie bits have to battle against the other droid's techie bits for control of its circuits. If you win, you're able to control the new droid, which will probably be better than your existing one.

There are loads of classes and the one's with better capabilities are harder to take over. And the higher the class, the higher level of

programmers although it's a bit broader in appeal now. We've had articles about programmers converting games such as *Gods and Last Ninja*.

At the moment we're doing *Populous*. I'm also doing a series about coding your own Arc game, taking it step by step to help those with little experience. There's lots of other stuff, including a parody of *Gamesmaster*. I would call the mag a mix of humour, solid gaming and game coding.

Me: And the future?

Andrew: Well - I see you marrying a beautiful model and winning the Booker Prize.

Me: Yes, that goes without saying, but what about *Coin-Age*?

Andrew: Nothing definite at the moment, but we hope to do more conversions in the future.

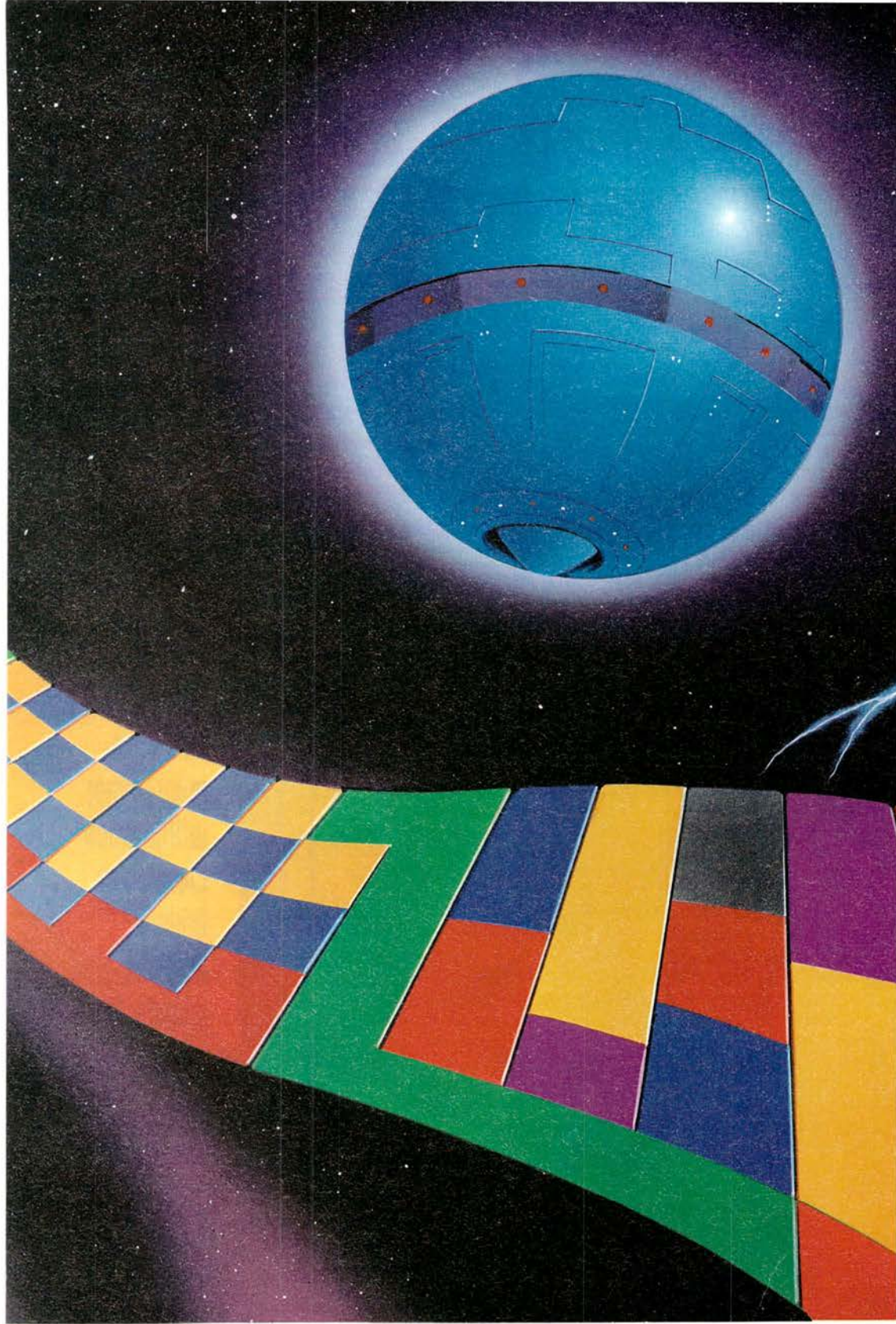
Me: Excellent! Any chance of that onion barge?

Ben Reilly



Braybrook was a top programmer, writing such classics as *Uridium*, *Rainbow Islands*, *Fire and Ice* as well as *Gribbly's Day Out*





"Professor

Our only way
to SURVIVE -
to send a droid
to FERVOUR
for the oxygen.

is it possible'

The year is 2100 and you, professor Skitz Patrick, are returning from a mission in search of a planet suitable for human habitation. Earth is being destroyed by ecological disasters brought on by the human race. On returning to Earth you are unable to make radio contact with anyone. All radio frequencies are jammed with the following message which repeats every minute, "Take shelter immediately leave pets behind as they use valuable oxygen, and close your radioactive shelter..."

After close observation of your spacecraft readings you decide that some disaster has occurred since the temperature of Earth has risen dramatically. It occurs to you that it is probably unsafe to return to Earth. Unfortunately your supplies of oxygen aboard the spacecraft are limited. Though unsuccessful on your mission for a planet suitable for human habitation, you do find a source of oxygen on the surface of a planet named Fervour. You head back towards Fervour.

The surface temperature of Fervour is well over the range of your instrument thus making oxygen retrieval very difficult. After several days of experimentation with oxygen retrieval you have come up with a spherical droid with as few moving parts as possible. It is impossible for you to get near Fervour because of the sheer heat, thus you must control your droid via a high frequency microwave link.

Radiating out from Fervour there are several thousand bands of varying pure energy. Your droid uses this energy to drive itself. Unfortunately, some areas have excess energy and cause strange effects. Luckily, the frequencies of radiation of the electromagnetic wave radiated from these areas are within the visible spectrum. This means that you are able to see what areas of energy your droid is over.

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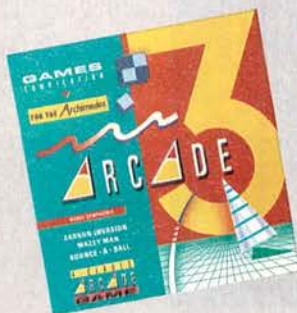


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Fervour

... hit the road, Jack



WITH the recent launch of the new games-oriented A3010, it seems likely that we are about to witness a massive expansion in the number of games available for the Arc, both good and bad. *Fervour*, recently launched at the Acorn User show by Clares, substantially pre-dates Acorn's new computers, but if this is a measure of what is to come then I simply cannot wait.

The game is set around a far distant planet named *Fervour* in the year 2100. On return to Earth after a mission to seek out new planets suitable for human habitation, you discover that a catastrophic ecological disaster has occurred which has rendered the familiar, homely, blue planet most unwelcoming.

You return to *Fervour* to begin the complex and difficult task of collection of oxygen – without which you cannot even contemplate survival – over the atmosphere of this hot, hostile, and rather unlikely planet.

Hmm. Well, the actual game bears little resemblance to this story, but that does not seem to matter. I suppose that to omit a fantasy storyline would have left the game feeling a bit abstract – which is exactly what it is.

On each level, you pilot a droid – a blue ball – through a course of ever-increasing difficulty. You use the controls – keyboard, mouse, or joystick –

to move forwards, left, right and to stop. If you fall off the edge, your droid is killed. The course is made up of rectangular sections of different colours – each colour has its own characteristics.

One colour causes you to stop, another to accelerate and another to veer left or right, and there are many more. You can also collect bounce credits which allow you to jump over obstructions.

Just piloting the ball – sorry, droid – around a simple course would be difficult enough but when the many different effects are placed strategically – often to cause maximum confusion and inconvenience – the effect is to create a challenge of mega proportions.

The game is wildly addictive. I have spent days battling away at it. Several times I nearly strangled my monitor. Many times I screamed aloud in frustration. But I returned to try again. The concept is simple but the gameplay is superb. I have completed 23 levels and am showing no signs of boredom whatsoever. The ball graphics are cute and its high in the top ten for gameplay.

The whole thing is set to music – often light and catchy 12 bar. I have found myself whistling it in traffic jams.

A wimp-based level editor is built in. This allows you to edit the exist-

ing levels and create new ones. You can use Paint to edit them if you prefer, but I can't see why you would want to. Levels have two passwords, one for playing and one for editing. The variations are enormous, with many different effects available for



The concept is simple but the gameplay is superb

each ground section, variable time limits, friction and gravity.

Some of the levels are rather humorous – I won't say too much because it might spoil your enjoyment – but not all are what they seem.

At £24.99 that this game represents superb value for money. It will yield months of nail-biting monitor-strangling entertainment. But don't take my word for it – have a look at this month's cover disk. Now go away, 'cos I want to get on to level 24.

Ricky Delarre

PRODUCT SPOTLIGHT

Price: £24.99

Supplier: Clares Micro Supplies, 98 Middlewich Road, Rudheath, Northwich, Cheshire CW9 7DA. Tel: 0606 48511

Omar Sharif's Bridge

... bidding for glory

Bridge first came in to being in the late 19th century but did not have all the rules for bidding and counting points. The actual game of Contract Bridge as known today was invented by Harold S Vanderbilt in 1925. Since then it has grown in popularity to become one of the most commonly played card games in the world.

Omar Sharif's Bridge is certainly ideal for the beginner and contains some excellent tutorial hands

AMONG the card games best suited (sorry) for conversion to computer simulation have got to be those involving trick taking. I've never seen Whist or Solo on any micro but Bridge appeared, in quite a crude form, on the BBC Micro several years ago.

I've always wanted to learn this game for real, but it ideally needs four players of equal ability. Without this a learner will get utterly demoralised by the expertise of the opposition while his partner, whether friend or foe, will soon be after his blood as inevitable clangers are dropped with increasing regularity.

Whist and Solo involve playing hands with the trump suit changing in strict rotation. Bridge is more complicated because the *contract* as it's known, is arrived at by bidding. This is rather like a set of codes by which you tell your partner what cards

you're holding and he describes his hand, but according to strict conventions.

You need to be able to practice this bidding while sticking to the rules so that you arrive at the best contract suited to both hands.

You play both your own and your partner's hand when it's your contract – the cards you've been dealt are placed face up on the table. Play is then similar to Whist and involves the same skills such as the best opening lead, finessing and other technicalities that need to be practised. Ideal meat for a simulation.

Omar Sharif's Bridge has just made it on to the Archimedes, and

although I'm no expert (yet), I reckon it's one of the best computer card games I've come

across on any format. The game is Risc OS compatible which means that it doesn't take advantage of the usual interface. But it's still quite easy to follow and my fellow players liked the voice commenting on our moves. Was this really Omar himself?

As in Chess simulations, assuming the program plays the game correctly,

ing remaining tricks – saves playing out the whole hand – getting a hint on the best card to play or bid to make, stepping forward or backwards through the play of hands, aborting the current hand and switching players.

Preferences that can be altered, and become the default on loading,

include the game's thinking and playing speed, whether the computer will explain why a certain play was illegal rather than just prevent the play, modifying the colours, and enabling or disabling music and full speech.

The screen display is crystal clear, and bidding or playing the hands is a simple matter of clicking the mouse on the bids displayed in the centre of the screen or the cards spread out on the table in front of you.

Seven tutorial games are included and these have specific purposes as

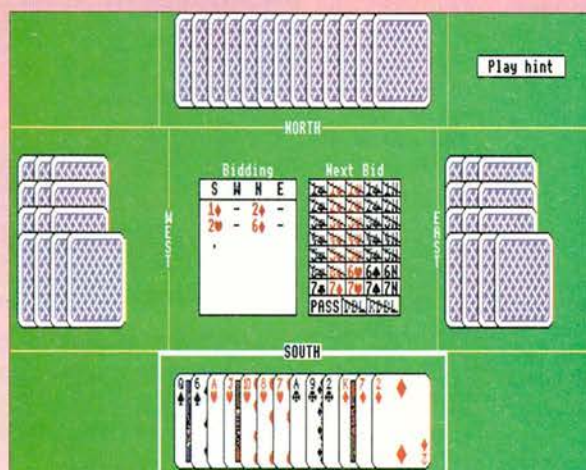
explained in the manual. You must arrive at, and make, the target contract suggested. I've played through all these and apart from one or two minor transgressions I am making considerable progress.

The more experienced player will find it useful to know that the program uses either Five Card Major or ACOL bidding systems, and supports Blackman and Stayman conventions.

Omar Sharif's Bridge is certainly ideal for the beginner and contains some excellent tutorial hands, and a concise set of rules and tips on playing and bidding tucked away at the back of the manual.

I don't doubt that beyond the tutorials, the random hands will offer a serious challenge to more experienced players and possibly experts, although I'm not yet in a position to confirm this.

Brian Rigby



● According to the tutorial I should be in Four Hearts here, so something has gone wrong with my bidding

what sets one product apart from another is the interface and range of options on offer to make the learning and/or playing process more enjoyable.

The opening screen offers a choice of deals: *Randomly generated* – just as if dealt from a pack, *Manually entered* – useful for testing strategies, and *Loaded from disk* – a previously saved hand or one of the tutorials.

On the main screen screen pull-down menus offer File, Display, Action and Preference options. *File* allows you to save and load hands, send them to printer or file, erase from the directory or quit.

A range of options controlling what you see on the screen is available in *Display*. These cover such things as seeing any or all of the hands, reviewing the bidding, displaying the score and explaining how the last hand was scored.

Action covers claiming or conced-

PRODUCT SPOTLIGHT

Price: £29.99

Supplier: Krisalis Software, Teague House, Masons Yard, Downs Road, Moorgate, Rotherham S60 2HD
Tel: 0709 372290



Cambridge International Software (C.I.S.)

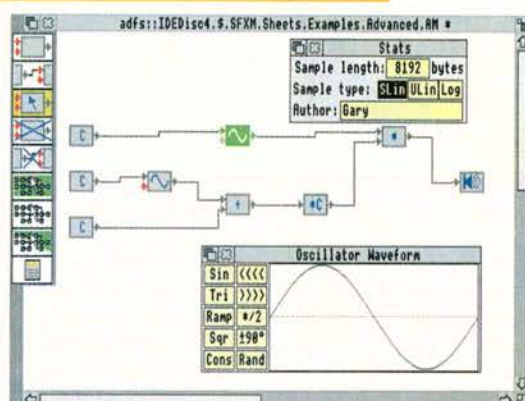


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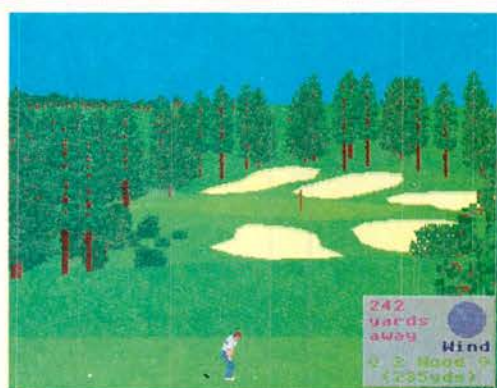
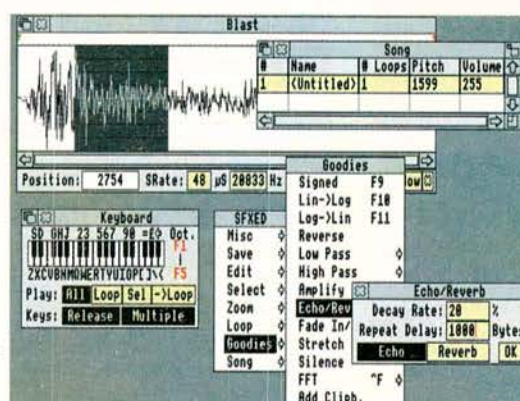
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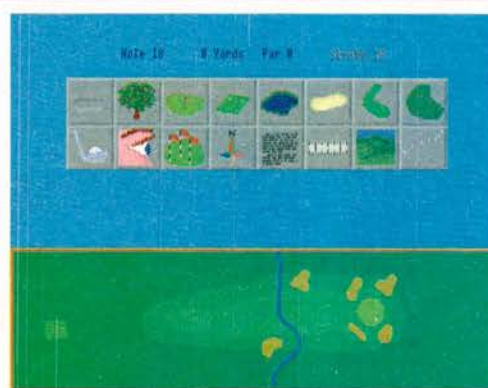
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Survivor

... after armageddon



The scenario is of the best nightmare science fiction variety

BUDGET games for the Acorn 32-bit machines are still pretty rare, and so the first thing I want to draw your attention to is the price of *The Survivor*. A tenner is pretty well a rock-bottom these days – always provided the product is of a high standard.

Produced on the ALPS adventure-writing utility, *The Survivor* is quite memory hungry and I had to use my task manager to squeeze the necessary space from my 1Mb.

It is also the very first adventure I have ever encountered where a map comes already supplied: This has got to make things easier for beginners to get right into the game and start tackling the puzzles and, with this particular style of adventure, is a plus-factor that will not spoil your fun.

The scenario is of the best nightmare science fiction variety and – as Geoff Lynas points out – there's plenty of gruesome gore encountered along the way.

Population pressure, pollution and international tension have pushed the world to flash point. As a civil servant you were allotted space in a Municipal Shelter – and, when the explosion finally came, it was there that you last-ed out *The Twelve Hour War*.

The devastation was so great that, 10 years later, there was still no truly safe means of going outside. Naturally the confinement begins to get to you and you are on the point of cracking up. After a drug-induced sleeping jag, you awake to find everything in

the shelter has changed – for the worse, naturally.

Before you start play there are certain options to be chosen – level of difficulty, graphics on or off, sex of main character and so on. Since *The Survivor* is not overwhelmingly illustrated, the graphics are best left on and I can't emphasise enough the

adventure to be as close to virtual reality as I could get using words alone. It is possible, therefore, to make a mess of individual problems and still come out on top using some alternative strategy.

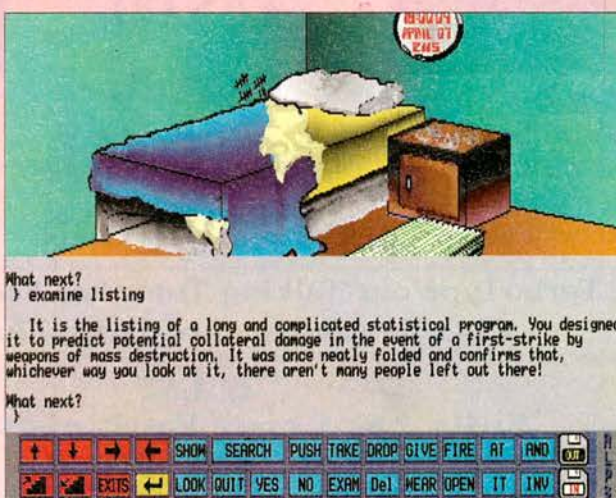
The ALPS system means you are provided with a menu bar giving various movement directions as well as other actions which can be chosen via the mouse. It also means that the mouse can be used to select words from the descriptive text to build up commands for the parser. These commands can – with care – be quite lengthy and complex.

As always, it pays to be careful in the early stages of the adventure and I would strongly recommend that you take the easier playing option to begin with.

The reason for this is simple: A move-counter is at work throughout and has an effect on your surroundings. By taking the easy option you gain more time for exploration. I've got to be honest, though, and say that if you complete the game the first time you attempt it, I'll consider eating my proverbial hat.

I would also advise a thorough exploration of the level where your sleeping quarters are located, noting carefully where objects are to be found, as this will help you to work out what your ultimate aim is. You would then be wise to restart the game having made notes of your game plan.

Careful exploration will mean that you have to use both *Examine* and *Search* quite a lot – and don't forget that these commands *should not* be used interchangeably. Furthermore, if for example, a console is described as having knobs and levers on it, it will probably repay you to examine each



need to read the information booklet first: A lot of useful help can be found there.

One other factor that makes *The Survivor* stand out is its flexibility – quoting Geoff Lynas: *I wanted this*

Cyber Chess

... added extras

in turn. If a lever is then described in even more detail I'd suggest you try to examine what that detail is. Useful information can be buried quite deeply in this adventure.

You are limited to carrying four objects – I never claimed this was an easy adventure, did I? Some things can be worn, and there is also a maximum weight that you can carry. Deciding where to store useful objects should be a part of your overall strategy.

While I am dealing out hints, I ought to warn you that access through various closed doors requires more than one piece of equipment. Helping you to discover precisely what is needed is at the heart of the initial puzzle. Finding this additional piece of equipment then becomes a high priority, or you'll never achieve sufficient points to complete the game.

If you tackle the less demanding version you will need fewer points for victory, but I suspect that the moment you have done that you'll want to start again and demonstrate your strategic and reasoning skills by tackling the tougher version.

The text is well written and the parser has had a lot of work put into it so as to provide sensible – as far as possible – responses to stupid input. Thus bald answers of the *You can't do this* variety are just about eliminated. The puzzles are well designed and the overall gameplay is excellent. Given the price, *The Survivor* provides superb value for money and will keep you scratching your head for many a long hour.

A sequel is planned and I can't wait to get my sticky fingers on it.

Mad Hatter

PRODUCT SPOTLIGHT

Price: £9.99

Supplier: Lynsoft, 23 Coral Street, Saltburn-by-the-sea, Cleveland TS12 1DB.

Tel: 0287 624843

WHEN Cyber Chess was originally released 4D promised a new version of this classic game with a better end-game strategy. When playing the more difficult levels it is pretty hard to test the end game strategy as the computer usually

had the upper hand well before the end ... but after a while it does become obvious that the computer's choice of moves in the closing stages of each game is rather weak.

Now a new version is here with a vengeance and even if you don't have ARM3 or vast amounts of free memory, Cyber Chess has become more of a challenge.

Version 1.24 not only has a stronger chess algorithm when you play in full strength mode, but a number of other enhancements which may be of use. In the original, possible moves could be highlighted by the computer to help you decide where to place your next piece. This tied up vast amounts of memory and

slowed down other applications.

This is no longer the case and although hints are still provided in the Teaching and Thinking modes, those options don't use up extra ram. A well-considered change.

The computer will now concede when you start playing like a grand master. Previously Archie would play until it had lost or needed to resign, now he tells you when he's found himself in a sticky situation.

This isn't a vital amendment to the program – you can usually tell when you are thrashing someone at chess – but these and the other features do distinguish it from other games on the market.

So with still more levels than

Canary Wharf and with a free upgrade be warned before you mail back the first version – it's getting much harder to win.

Raj Sinha

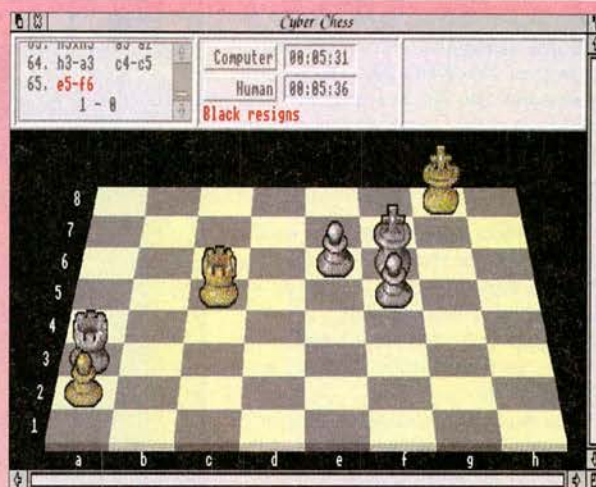
PRODUCT SPOTLIGHT

Product: Cyber Chess 1.24

Price: Free upgrade

Supplier: 4th Dimension, Neepsend House, 1 Percy Street, Sheffield S3 8AU.

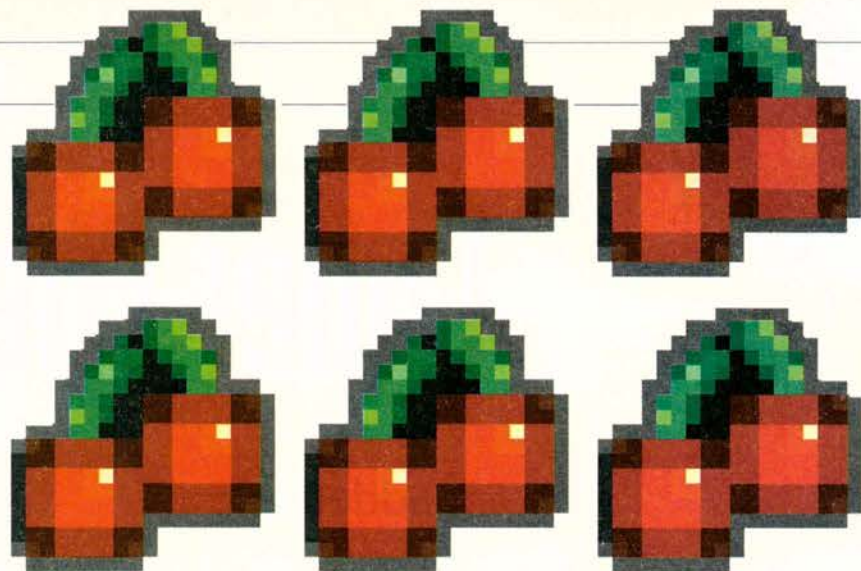
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The computer will now concede when you start playing like a grand master

Mr Doo

... blast from the past



Unfortunately, I found Mr Doo to be uninspiring and uninspired

ANYONE who has been around in home computing since the early days of the 8-bit BBC Micro will remember the Mr Eee and Mr Wiz style games that were all the rage in the 1980s. Well Mr Doo is a brand new version of the original, but for the Archimedes.

The object is very simple – guide Mr Doo around the screen, collecting cherries and dropping apples on to the meanies that wander around aimlessly. Extra features have been added, such as bombs, potions and sliding blocks.

You have the choice of entering the game immediately or to customise it to your liking. The customiser lets you choose whether to have monsters chasing you, apples available, as well as a number of other useful options. A high score table option is also included.

Beginning the first of 60 lands is relatively simple. There are no apples to kill the monsters that chase you but you do have a number of magic balls which can be fired at the enemy to kill them. While flying round the screen collecting all the cherries, the music begins to drive you mad and, unfortunately, it cannot be switched off.

The oxygen counter at the side of the screen gives you a limited time to collect every cherry on the screen although you shouldn't find completing the first few levels too difficult. The speed is a lot quicker than I had expected, and at times it can be difficult to avoid the monsters.



Apples have been added to later levels, which can be used to your advantage as



you can lure the monsters under an apple before it falls on to them, rendering them dead. The only disadvantage is that you can block cherries in, effectively preventing you from completing the game, so be careful. The pause key is very useful as it lets you map out further moves.

Having played the game for a short while, the screen suddenly went blank with lines across it. I have assumed that this is to do with the screen blanking facility on Risc OS 3 and you will need to move the mouse before the playing area re-appears.

The designer allows you to create your own lands and is pretty compre-

hensive. You can place cherries, apples, monsters and other objects anywhere on the screen, although you are given a minimum and maximum amount allowed on screen at any one time. You can edit an existing level or create a completely new one if you prefer. These can then be saved on to disk.

Unfortunately, I found Mr Doo to be uninspiring and uninspired. The graphics are nothing special and the sound is dire. The original BBC titles were a lot more addictive even with the addition of the designer, which makes the game more interesting.

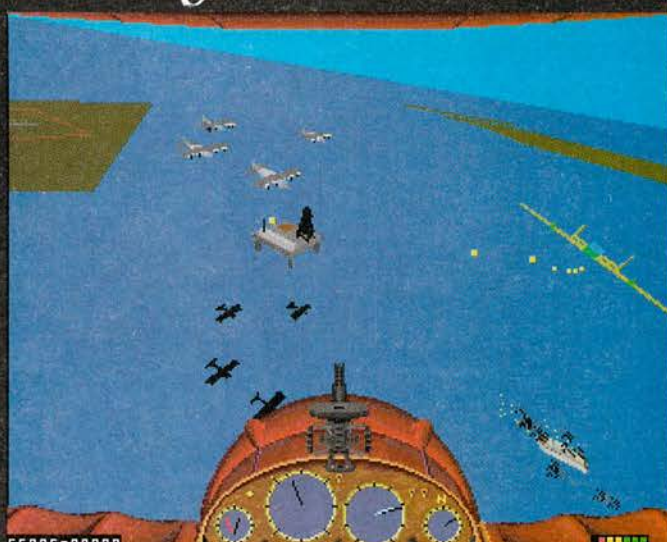
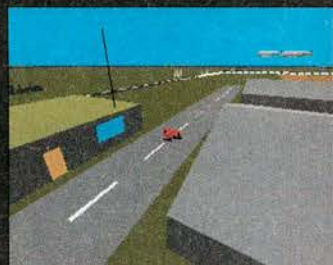
Brett Colley

PRODUCT SPOTLIGHT

Price: £23.50

Supplier: Image Systems, Sowerby Woods Business Park, Park Road, Barrow-in-Furness, Cumbria.
Tel: 0229 430200

Chocks Away EXTRA MISSIONS



CHOCKS AWAY

This new upgraded Mark II Chocks Away with supersmooth animation really is flight simulation the way you've always wanted it. It has everything for the beginner and the expert:

*Beautiful 256 colour graphics and 'nerve shattering' digitised sound effects

*Easy to fly, yet highly manoeuvrable bi-plane - ideal for all ages/skill levels

*Revolutionary 2 Player Option using split screen display. This allows 2 players to each fly their own planes simultaneously in practice, dogfights or missions

*Full joystick, dual joysticks, mouse and keyboard control options

*Amazing "Black Box Flight Recorder" included so that you can record your own flights and then save and replay them. 90 minutes of totally absorbing pre-recorded training flights are included with the game

*Internal/External views of your plane can be selected from front/rear/left/right

*Powerful 30mm cannon capable of very rapid fire and long range destruction

*Easy to read instrument panel and simple controls

*3 very varied immense maps to explore - approximately 18000 km² in total

*20 fascinating and varied missions of increasing complexity are included with a promotion system from Cadet right through to Marshal of the RAF

*Superb range of targets/enemies including bombers, triplanes, fighters, tanks, control towers, anti-aircraft guns, HQs, patrol boats...

CHOCKS AWAY EXTRA MISSIONS

This consists of a new manual and a disc containing an additional 26 missions (6 of which are reconnaissance missions). It is loosely based on the original Chocks Away and features an extensive range of extra features and improvements. To run it you will require the MkII version of the original Chocks Away. Extra features include:

*16 new & detailed maps based over land & sea.

*20 enemy planes and 20 enemy targets are included in each mission. Over 1000 extra targets and planes have been carefully defined.

*Considerably improved action on all missions with plenty of targets to shoot at and plenty shooting at you.

*You can view the action from any of the enemy planes or targets and your own control tower at any time even while still controlling your own plane or watching a saved flight. There is a selection of tracking cameras (with adjustable zoom lenses!) around the playing arena. In addition a phantom plane can also be selected to follow the action on any of your black box flight recordings.

*Improved enemy pilots capable of performing loops, rolls, stall turns etc.. All enemy planes are carefully modelled using the same equations controlling your own plane. This ensures both an accurate and fair simulation.

*More enemy planes and targets to shoot including: Three Engine Fighters, Enormous Cargo Planes, Airships, Barrage Balloons, Gun Boats, Oil Tankers, Trains etc..

*Six reconnaissance missions where you are required to take photos of various installations with your new on board camera.

*Improved graphics over the 16 maps including Complex Cities, Houses, Railways, Roads, Rivers, Bridges, Lampposts, Railway Stations, Oil Rigs, Piers, Beaches, etc. to mention but a few. In total over 100 different graphics have been defined.

*Serial Port Link Up option so that you can link up 2 BBC A3000 or Archimedes computers and 2 pilots can fly simultaneously in full screen mode.

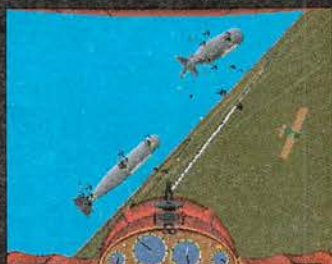
*Extensive enemy flak guns and improved enemy plane guns help make the new missions both more interesting and challenging to say the least!

*Improved digitised sound effects plus, of course, all the extensive options which are available with the original Chocks Away.

WIN a Superb..... "Radio-Controlled Biplane"

Successful completion of all 6 Reconnaissance Missions will allow you to enter this competition

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CHOCKS AWAY (Mark II Version with 1 or {split screen} 2 player options) £24.95

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CHOCKS AWAY COMPENDIUM (Chocks Away & the Extra Missions) £39.95

CHOCKS AWAY NETWORK (Econet/Midi etc. - Ring for Availability & Price)

Chocks Away Reviews

Chocks Away Mark I Version was awarded **GAME OF THE YEAR 1990** by Acorn User, A&B Computing (now Archimedes World), Rise User & Micronet.

"Graphics in the game are superb, smooth and with plenty of ground detail.....this is a really enthralling flight simulator with plenty of variation and features to ensure longevity." Rise User, Dec '90.

"Chocks Away is a delightful game." Archive, Jan '91.

"Chocks Away is a brilliant game." BBC Acorn User, Dec '90.

".....it's a really great game. Playability 10. Value 10." The Micro User, Jan '91.

"(Chocks Away Mark II Version).. The increased speed obviously makes the game more responsive and fun to play, well and truly overtaking Interdictor II as the best Archimedes plane game." New Computer Express, Feb '91.

Extra Missions Reviews

"I reckon Chocks Away is probably still the best game available for the Archimedes/A3000." BBC Acorn User, August '91.

"How do you improve on a game that left me rushing for my Thesaurus to describe it? Well, those guys at 4th Dimension have delivered the goods once again, and have somehow managed to improve on the best flight simulation on our humble Arc." Club A3000, Summer '91.

"Chocks Away remains, above all, fun. It doesn't really sacrifice realism, but it also doesn't make controlling the aircraft so complicated that you haven't got time to enjoy the game." Syracuse, Summer '91.

"If you haven't yet seen this game, the screenshots in the 4th Dimension's latest adverts don't do the game justice, simply rush out and buy it. Beware though, once you've played it once, you'll never have another early night." Micronet, June '91.

Cyber Chess



"The Definitive Chess-Playing Program"

Chess is probably the most popular game in human history. It has survived for fourteen centuries and is as successful today as ever. Thousands of people have dedicated their lives to its study and over ten thousand books have been published on its theory.

Now the Fourth Dimension is bringing the full magic of the game to Archimedes owners with its latest product, *Cyber Chess*. This represents one of the highest specification chess-playing programs available for *any* micro-computer. Over three sides of A4 paper is needed just to name the features present in the program. Some of its main points are:

SUPERB 3D SIMULATION

- A near complete 3D simulation of the game. Animation is used to move the pieces smoothly around the board; pieces are picked up and dragged by the human player to their new squares.
- Designed for total clarity. The board is carefully arranged so it can be played from without difficulty. A large alternative 2D view is also provided as an option.
- High-quality digitized stereo sound and speech.

RISC OS COMPLIANT

- Runs from the desktop in a window; fully multi-tasking and intuitive; follows the 3D style associated with high quality software.
- Multi-windowed. Any number of games can be opened and running from one incarnation of the program (within available memory). A sophisticated internal scheduling algorithm allows *Cyber Chess* to drive all computer opponents/games simultaneously whilst still smoothly multi-tasking with other desktop applications.

FIDE RULES

- Full implementation of all applicable chess laws, including en passant captures, underpromotions, 50/75 move rule etc. Even resignation and draw by agreement are supported.

HIGH SPEC MACHINES

- Optimised for an ARM2, mode 12 system. But takes full advantage of a faster processor or even extra RAM to produce a higher 'full strength' playing standard and smoother animation.
- Thoroughly tested with RISC OS 3; supports saving of the desktop.

BACKGROUND

- The publisher, The Fourth Dimension, is the premiere specialist games house for the Archimedes with a string of classics dating back several years. *Cyber Chess* represents the latest in superb 3D simulations following on from great best-selling successes such as *Chocks Away*, *Saloon Cars* and *Break 147 & Superpool*.
- The author, William Tunstall-Pedoe, has been developing commercial software for Acorn machines for nearly ten years including several high-quality Archimedes products. He has a First Class Honours degree in Computer Science from Cambridge University and spent over a year studying computer chess research in order to produce *Cyber Chess*. This project is by far his most substantial yet and was designed from the beginning to be the definitive chess-playing program for RISC OS machines.

Acorn A3000, A5000 & Archimedes Price £49.95

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The Fourth Dimension, 1 Percy Street, Sheffield, S3 8AU Tel. (0742) 700661 or 769950

SUPPORT FOR BEGINNERS/CHILDREN

- You can learn chess from scratch using *Cyber Chess* with the tutorial supplied.
- 100 beginner levels are provided going from 0 (very very weak) to 99 (reasonably competent). This encourages beginners/school chess players to continue playing by not demoralising them and allows them to monitor their progress as they begin to beat higher levels. When they beat level 99 they can graduate to 'full strength' mode.
- Teaching option shows you which moves are legal as you play.
- If a player gets stuck a hint can be requested.
- The names of the openings can be announced as they are played quickly familiarising chess learners with the various opening systems.

SUPPORT FOR STRONGER PLAYERS

- State-of-the-art chess algorithm.
- *Cyber Chess* can perform analysis, giving the best line of play from the current position and an estimate of who is winning/losing and by how much.
- Full tournament time controls (e.g. "40 moves in 2 hours and then all remaining in 1 hour") can be set up. Time controls can be set for human players as well as computer opponents to simulate real tournament conditions.
- State-of-the-art opening book supports opening traps and advice. Multiple books are provided and new ones can be added or existing ones edited.
- Even the style of computer play (defensive, attacking etc.) can be adjusted to taste or to prepare for a match against a similar human opponent.



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Saloon Cars DELUXE



The Improved Driving "Game-ulation"!

UPGRADE for 1/2 PRICE Only £17.50

This new improved DELUXE version of *Saloon Cars* includes many new features suitable for upgraded machines and A5000s, plus many new features suitable for all machines.....

REAR-VIEW MIRROR

Improved rear-view mirror.
Improved improved rear-view mirror suitable for Arm3 users.

COMPATIBILITY

Compatible with Course disc to be released soon (see below).
Compatible with Formula 1 upgrade to be released in response to demand for a decent Formula 1 simulation on the Archimedes (hopefully late 1992).
Compatible with Saved Players from *Saloon Cars v1.0*.

GRAPHICS

New car graphics, featuring the most sophisticated vector graphics ever seen in a home computer game, allowing full 3D rotations of cars - other cars can actually spin off the track in front of you.
More realistic crashes, allowing other cars to have smash-ups almost as spectacular as your own (2MByte only).
Gameplay has been enhanced immeasurably by the addition of a completely new loading screen.

COURSES

New practice course (Test Track), easier (less hard) to stagger round than the old one.
Even more detailed and realistic features on most courses.
Detailed and Fast modes on some courses to allow use of the full potential of the Arm3 without compromising Arm2 users.

BORING TECHNICAL JARGON

Can be installed onto and run from Hard Disc.
Features minor refinements to the more anomalous features of the original *Saloon Cars v1.0*. (Most of the bugs have been fixed!).
Unique integration process allowing speed variations in processing to maintain the highest possible frame rate at all times whilst maintaining perfect real time simulation of the race. (The game doesn't slow down when the graphics do!).
Special mode for machines with more memory which uses the extra capacity to enhance the speed and complexity of the graphics.

AND FINALLY

Many more features which we want to be a surprise.
Probably a few more features we haven't even thought of yet, and....a few we didn't think up at all.

OLD FEATURES

Saloon Cars DELUXE still...
does not provide a realistic simulation of a full time office job,
does not make the coffee,
and it still isn't quite as good as actually going out for a drive in a Sierra Cosworth.

OLD REVIEWS OF SALOON CARS v1.0

"*Saloon Cars* is the definitive racing game. It is pure, unadulterated fun." *Archimedes World '91*.
"Make no mistake: the speed and smoothness of this game has to be seen to be believed." *Syracuse '91*.
"...you cannot help but be astounded at the gameplay." *Club A3000 '91*.

Acorn A3000, A5000 & Archimedes Price £34.95

To upgrade simply return the whole original *Saloon Cars* directly to us plus payment.
We'll send you the newly packaged / enhanced 3 disc DELUXE version on release.



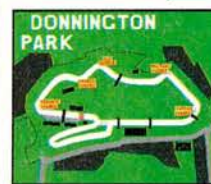
SALOON CARS DELUXE COURSES

The new DELUXE version still contains the 2 real courses, Silverstone and Brands Hatch, plus a newly designed wide practice course called Test Track ideal for beginners.



SALOON CARS EXTRA COURSES

This new Course disc contains 3 superb new courses which are only compatible with the new DELUXE version. They cost £19.95 and will be released hopefully in late June '92.



Chopper Force



"Superfast Action-Packed Chopper Sim"

Superb 3D graphics, stunning sound effects and rivetting gameplay combine in this futuristic helicopter simulation. The Chopper Force is an elite band of police helicopter pilots set up to combat the modern terrorist.

ADVANCED HELICOPTER TECHNOLOGY

Gone are the old-fashioned dials and indicator LEDs of 20th century technology. Instead a sophisticated head-up display and a wide-screen monitor are provided. The monitor brings all relevant information straight to the attention of the pilot - saving the constant scanning of dials and indicators. The helicopter is equipped with powerful retro-rockets which when activated give it much of the power and speed of a jet. With the retros off the full manoeuvrability of the helicopter becomes available. Landing on skyscrapers and lifting equipment with a rope becomes possible.

RANKING SYSTEM

As you climb through the ranks extra equipment will become available. You will also gain privileges such as access to satellite surveillance. Ranking credits will be given for destroying any terrorists that are about when you do your mission as well as for achieving specific objectives.

Ranking debits are given for friendly-fire or civilian casualties that you may cause. To improve your rank you may redo a mission to try and get those

terrorists that were missed the first time. Each player has his/her own personal file protected by a password that records what you have achieved so far.

LARGE MAP

The whole game takes place in one gigantic arena with a superb variety of buildings, roads, rivers and other objects. There are over 20 fascinating and varied missions that will test even the most experienced flight simulator fans.

STUNNING SOUND

A large variety of samples have been recorded at a high quality sample rate. The doppler effect is fully implemented just as it would really sound. The volume is correctly calculated using the inverse square law.

SUPERB GRAPHICS

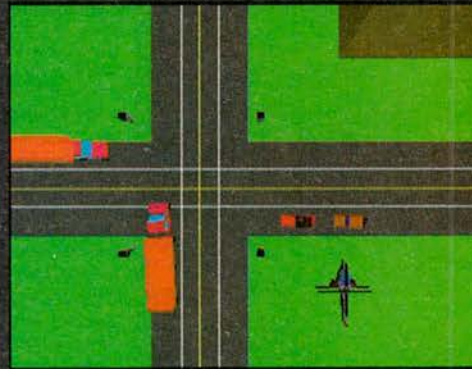
More polygons than ever before are seen at a smooth frame rate. And yet the vector code is extremely flexible, allowing views from EVERY conceivable angle which is made use of with an impressive list of view/tracking facilities.

COMPETITION

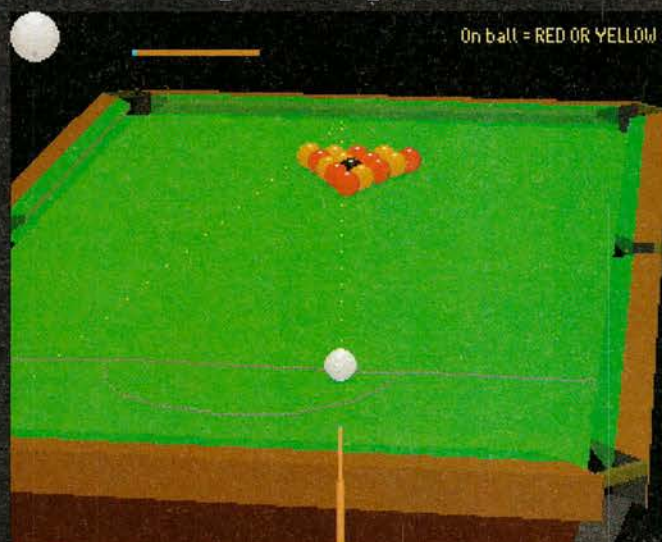
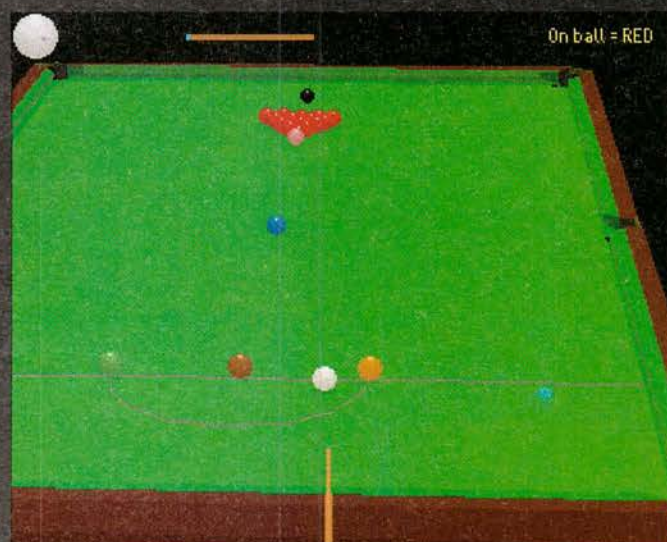
Super prizes can be won by top scoring pilots.

For All Acorn 32-bit RISC Machines Including all A3000s, A3010s, A3020s, A4000s, A5000s & all Archimedes Price £29.95

The Fourth Dimension, 1 Percy Street, Sheffield, S3 8AU. (0742) 769950 or 700661



Break 147 & Superpool



"Snooker & Pool Simulator Par Excellence"



'BREAK 147' and 'SUPERPOOL' are game simulations in the true sense of the word. Gone are the power meters and fixed screw and side settings of inferior simulations and in comes a cue driven by reality software.

As in the real thing your grip on the butt of the cue (represented by the mouse), the smoothness and power of your cue action and the way in which you follow through with a shot, are all deciding factors in whether a pot is successful and whether you will retain position for the next ball. The only thing that is missing is the smokey air and a pint of beer on the edge of the table, these you will have to provide for yourself!

In both games you can choose to play on a practice table where anything goes. You can position balls wherever you wish so that you can improve your potting and positional play. You can even undo unsuccessful shots so that you can try them again. When you make that incredibly fine clip into a pocket or miss by the merest fraction, you can watch an action replay of the shot from any angle so that you can either gloat or see where you made that tiny mistake that let you down.

When you feel that you are up to the task you can play a single match against a friend or against one of the sixteen computer players. Should you feel lazy you can just sit and watch whilst two computer players battle it out between themselves. Alternatively you can enter a tournament where you will have to fight your way through the preliminary rounds and on to the coveted Final.

Whilst you are playing a match or in a tournament the game will be overseen by the referee. If in snooker you are 'on' a colour as in real life the referee will indicate the ball to you that he thinks you are going for and it is up to you to let him know if he is wrong. The referee will also call when a free ball is to be given, if there is a touching ball and your score after each successful shot.

SPECIFICATIONS

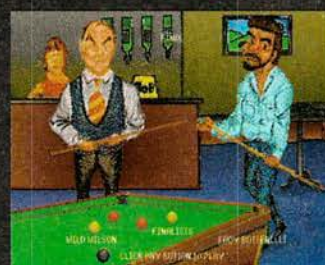
256 colour MODE 13 graphics optimized for maximum speed
225k of machine code

Over 147k of high quality sampled speech and sound effects
Ball plotting accuracy of ± 0.05 of an inch on a 12 foot table

Cue butt controlled by the Mouse
Bridge hand controlled by Keyboard

BBC A3000 & ARCHIMEDES PRICE £24.95

"Break 147 & Superpool" is compatible with the BBC A3000 and ALL Archimedes computers



Reviews

"The graphics are so good that certain photos of the game being played could be mistaken for the real thing. The behaviour of the balls and cue are immaculately simulated." Acorn User, Nov '91.

"All aspects of the game are staggeringly realistic, from walking round the table and eyeing up the next shot, to the trajectories that the balls follow when they move....No longer is taking a shot an unconvincing experience comprising of aiming at the ball, selecting the power level, and hitting a key....The release of Break 147 & Superpool is a giant leap from anything ever seen on our screens, to what is arguably the most realistic snooker simulation ever to be found on a home computer." Club A3000, Autumn '91.

Reviews

"Both Break 147 and Superpool are accurate simulations of the sport. The control method works well and the result is two very enjoyable games in one pack.... whether you are a snooker & pool fan or not Break 147 & Superpool are highly recommended." Archimedes World, Nov '91.

"The most realistic snooker sim I've ever seen." The Micro User, Nov '91.

"If you're a snooker or pool fan who wants a quality simulation for the computer then this is it.... In all, an excellent implementation of the game and I'm sure that due to the realistic 3D movement around the table, practice at Break 147 & Superpool may even improve your real game." Micronet, Sept '91.

Galactic Dan



"A Stunning Ray-Traced 3D Combat Adventure"

United Planets Bureau of Investigation - Internal Memo

Attention: Special Agent "Galactic" Dan Quicksmart

The Vorians have invaded the first moon of the Toorak system, and are using the native Poloids as hostages. Public opinion prevents us retaliating until the hostages are rescued; your mission is to secure their release. You will be transported down to the moon's surface from parked orbital shuttle. From then on, Dan, you're on your own.

You will be equipped with the latest military technology, including a plasma rifle and a sophisticated weapons computer, but your task will not be easy. With the Vorians' deadly array of mechanized attack craft to contend with, not to mention the vicious dust storms of the Toorak moon, you may be lucky to escape with your life.

Game Details

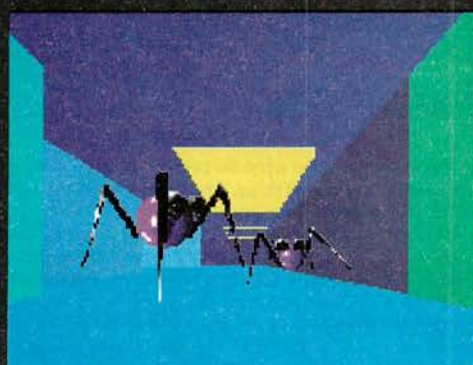
Galactic Dan is probably the best 3D arcade adventure/combat game you have ever seen. With huge, animated ray-traced sprites and fast, real-time vector graphics, the realism has to be felt to be believed. Run around 3D mazes of corridors, rooms, platforms, towers and more, searching for hostages, but be ready to fight the roaming robotic guards, spiders, rotor-guns, and other predators; not to mention the traps, energy barriers and gun turrets. The game takes place on the moon's surface, with sections in the ruined cities, the Poloid caves, the Vorian outposts, and the central military base - and more.

You have full control over your character; he can run, jump, climb, spin on the spot, and aim his gun in any direction. The control system is also totally intuitive, allowing fast movement (no clicking on arrows here!). Combat in this game is a nerve-wracking experience as you try to seek improvised cover from a surprise ambush in cave passages or bombed-out houses. And the game isn't just all combat - there are many tricky puzzles that you will have to solve to rescue all the hostages.

Specifications

- Real-time, full-screen, smooth vector graphics combined with large, scaled, ray-traced sprites to give an unequalled "virtual reality" effect.
- Fast, unpredictable but highly tactical combat with enemies that dodge your fire and use the natural cover to evade and ambush you.
- Fast-response control system that lets you run, jump, weave, turn, inch along, accelerate, aim in any direction and fire (all at the same time, if you want to!).
- Over 180K of sampled sound effects, with accurate stereo positioning that adds to the 3D effect.
- Uses integration to maintain game speed (so the gameplay never slows down or speeds up, but the graphics become smoother on an ARM3 machine).
- Frame rate average 10Hz on ARM2, 50Hz on ARM3.
- Dozens of levels with advanced combat and increasingly difficult puzzles to solve.

For All Acorn 32-bit Machines Including A3000, A3010, A3020, A4000, A5000 & all Archimedes Price £25.95
The Fourth Dimension, 1 Percy Street, Sheffield, S3 8AU. (0742) 769950 or 700661 - Hopefully October '92



EDUCATIONAL SOFTWARE for JUNIOR to GCSE A MAJOR NEW DEVELOPMENT

The NEW 10 out of 10 Series

These new suites of programs are a revolutionary step forward in educational software. Their innovative system of automatically recording children's progress truly sets the 10 out of 10 Series in a class of its own.

Each package contains SIX expertly designed educational games covering 10 of the most essential parts of a National Curriculum subject for children of any level or school age from Junior to GCSE. As children learn from the games their progress is automatically recorded in 36 specific areas of National Curriculum Attainment Targets. The programs are designed to be

fun for single players or groups and the assessment system monitors the progress of between 1 and 64 children with no input from parent or teacher needed. Watch them, join in the fun or leave them and return later to check their progress. You're in control!

John - Achievement Record 10/10 Mathematics (Number - R12)

SUBJECT	Carnival	Cover Up	Big Bang	Grab It!	Silicon	Cheers
Addition	2a.1	4a.4	3a.3	4a.6		2b.1
Subtraction		3a.4	2a.2	4a.5	2b.2	
Multiplication	4a.2	3b.1	5a.3	3b.2	7b.3	4a.14
Division	3c.2	4a.10	5a.4	7a.2	4d.4	
Fractions		6a.4			5b.1	8b.2
Decimals	6a.5		6a.9			
Percents	5b.2	6a.10	6a.8			
Estimation	8c.1			6b.1		3d.2
Units				3e.1	3e.3	5d.1
Powers					8a.1	5d.4

R12 Level 4a.2 (i) Multiplication facts up to 10 x 10

The achievement record shows the subjects covered together with the child's progress: Red: Help needed, Yellow: Practice needed, Green: 10 out of 10!

10 out of 10 MATHS (Number)

The Mathematics National Curriculum is split into five Attainment Targets. The Maths (Number) 10 out of 10 suite of programs is aimed to cover some essential parts of the Levels set out in Attainment Target 2. The package covers many topics from all Key Stages but the ten specific areas built into the design are listed below:

Addition
Subtraction
Multiplication
Division
Fractions

Decimals
Percents
Estimation
Units
Powers

Carnival: A great shoot-'em-up that checks number skills along with fire power. Various speeds challenge novice to arcade expert.

Grab It: Find and grab answers quickly in this fast-action game. It's a great way to practice number skills from tables to estimation.

The Big Bang: Keep cool and answer quick for high scores - an exercise in scale reading as well as arithmetic.

Cover Up: A challenging game to really get children thinking. It's a real game of strategy - especially in the multi-player modes.

Silicon Brain: A fun calculator practice game with key presses displayed on-screen to let you look back if answers are incorrect.

Cheers: A unique quiz game that will keep everyone on their toes. Use any of the six graded sets of questions or compile your own.



10 out of 10 ENGLISH

10 out of 10 English is designed around the National Curriculum for English and aims to reinforce the traditional values of the language. With its unique automatic assessment system the package covers many topics from all key stages but particular emphasis is placed on the following ten critical topics:

Spelling
Words
Nouns
Verbs
Adjectives

Language use
Punctuation
Pairs
Sound patterns
Figures of speech

Sniper: A chance for children to prove they know - or learn - some common sayings as they shoot the target words.

Cover Up: Vocabulary and spelling are just two of the skills exercised in this challenging game of strategy.

WordFit: Crosswords, board games and word power combine as children fit the correct words in to the grid.

Grab It: Spelling, punctuation and many other important skills are practised and learnt in this fast-action game.

Librarian: Move the mouse fast and re-arrange the books! There's plenty of sorting and matching in this novel new game.

Cheers: The quiz game that children - and the rest of the family - can learn from as they move up and down the board.



FULL MARKS FOR TOP OF THE CLASS SOFTWARE

Extensive in-game Options

Not only can the educational level of the games be chosen, speed of play, game length and many other options can be set to tailor the programs to your child's skill level at the game. This means the games can be set to suit anyone from novice to arcade expert - it keeps interest longer and increases personal challenge.

Three Sets of Graphics

All the games have three sets of graphics to appeal to any age. These are automatically selected depending on grade - a parent/teacher override is provided so that you can select the pictures most suited to your child.



SIX Top Games

The games are designed with education of paramount importance but the fun and challenge elements ensure that children will want to strive for better results each time.



Unparalleled Quality and Attention to Detail

This package is the result of months of work by experienced programmers, educational designers, game designers, teachers, parents and children.

Two Guides

The player guide lets learning start quickly while the parent/teacher guide gives more details - including how to interpret the Attainment Target numbers.



Parent/Teacher Flexibility

Many of the automatic features of 10 out of 10 can be customised by parents or teachers - including sound off/on, the starting grade and the graphics to be used. A Reveal option lets you see the educational objective of the game being played at a glance. There's even an optional code system to prevent children altering stored information.

Designed for the National Curriculum with Traditional Educational Values in Mind

While ensuring that items like tables and spelling are well covered the package deals with many important subjects in the order recommended in the National Curriculum.

Dual Scoring System

High percentages change the colours of the achievement chart while good gameplay - combined with high marks - give scores which are recorded on the high score tables. Both are automatically saved on disc so that children can keep returning to the package to improve on previous results.

Certificate Printing

Children with high marks can print a certificate of achievement. Text or graphic options are given to suit any printer and Triple R Education will print you a special one for a nominal charge.



Ideal for ALL Ages: Junior to GCSE

The fully flexible games all start with very simple ideas but develop to cover the more advanced topics. Adults will find the higher levels compulsive fun and a challenge too!



The 10 out of 10 Series is produced by Triple R Education
0742 780370

10 out of 10 Maths (Number) and 10 out of 10 English are both available NOW for only £25.95 each.

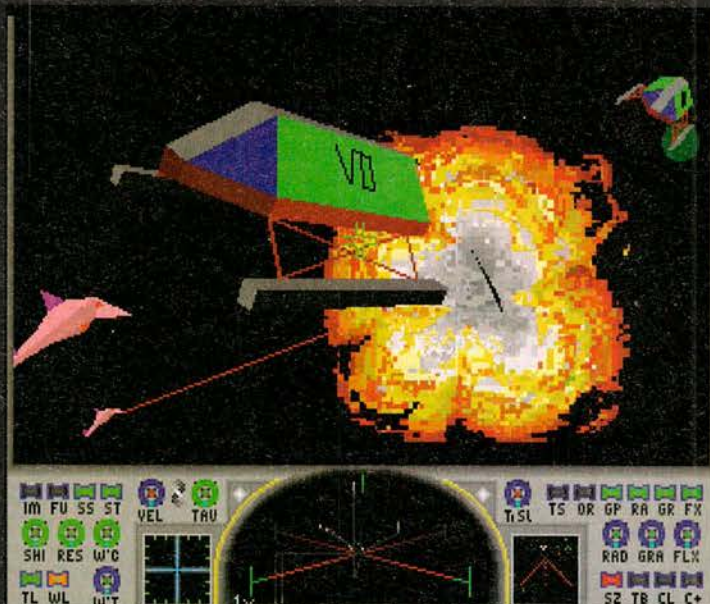
ORDER by mail or telephone: Access and Visa accepted. Triple R Education, 1 Percy Street, Sheffield, S3 8AU, England. 0742 780370

"10 out of 10 is unique ... a good resource for parents as well as good educational fun for children." - The Micro User

"I have total confidence in this suite of programs, coupled into it is the experience of parents and teachers alike." - Micro Computer Mart

Gordon J. Key's BLACK ANGEL

The Quest for the Key to The Gates of Carrion



**A Huge Brand NEW Innovative 4D Adventure for the 1990s
Brought to You by the Master of 32-bit 3D Programming**



The Unique Quest for the Key

The Universe is old, very old, and your fourth generation galaxy is dying. **Chaos Rules With Ultimate Power.** There are no laws save those that nature imposes and any that you choose to impose upon yourself.

Evidence has been uncovered of an ancient civilization which may have inhabited a third generation galaxy. A civilization which seems to have beaten nature's limits of time and motion. A civilization which could travel faster than light. A civilization which may have outlived the death of its mother galaxy and which may even have had the power to leave the Universe itself.

Of course very few people believe what can be read in the five Billion year old religious scripts. They choose to believe that the Star Gates are a natural phenomenon, they choose to become extinct.

The objective of the game is to seek out and find the many parts to the key to the Star Gates, with which you should be able to escape from your dying galaxy to begin life again in a better place. This key, which is actually a huge computer program, has been split into a multitude of small pieces and hidden throughout the galaxy inside eight dimensional caskets. You have been given the clue to the location of the first of the caskets which lies in the star system of Atisco.

The Innovative 3D & 4D Reality

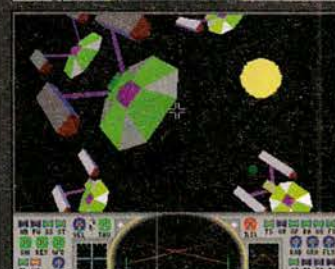
Black Angel represents a significant advance in graphics as used in computer games. Craft controls function correctly for ALL directions of movement and enable you to look and fire your weapons in any direction, regardless of the trajectory that your ship is following. The loss of control for certain directions of flight that occurs in the normal type of flight simulator/space game does not happen in this program.

In addition to this other craft that you will meet are not the simple convex surface triangles that you find in older inferior games, they are fully ordered multi-concave surface objects. It is thanks to the overwhelming power of the Acorn 32-bit RISC Technology that makes it possible to write the code to plot such objects in real time.

Also for the ultimate in reality, Black Angel is the first game to encompass the fourth dimension of Time. Your craft is subject to all the laws of relativity that a real craft would be. Of course scaled down so that it doesn't really take you several years of game playing to reach the nearest star!

For All Acorn 32-bit RISC Machines Price £34.95
Including all A3000s, A3010s, A3020s, A4000s, A5000s and all Archimedes

The Fourth Dimension, 1 Percy Street, Sheffield, S3 8AU
Tel. (0742) 700661 or 769950



PRODUCED by The Fourth Dimension THE 32-bit Acorn Games SPECIALISTS

SPECIALIST Acorn Software



Chopper Force £29.95 (Hopefully October '92)



Pandora's Box** £25.95



Grievous Bodily 'ARM £25.95



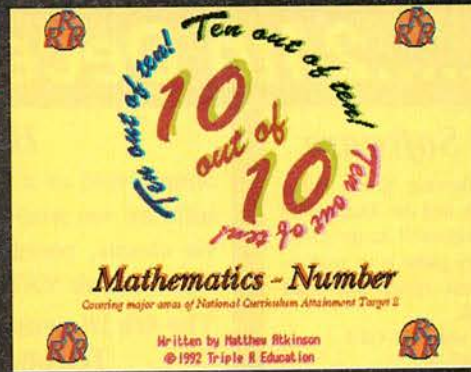
The Real McCoy 2 or 3** £29.95 each



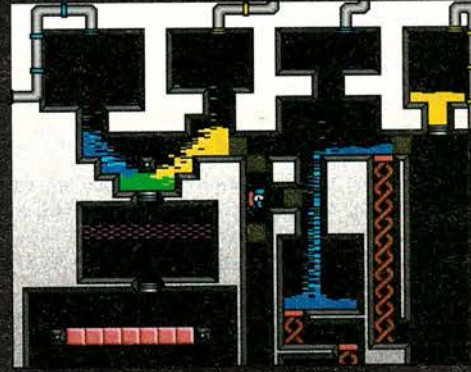
Enter The Realm** £25.95



Chocks Away Compendium** £39.95



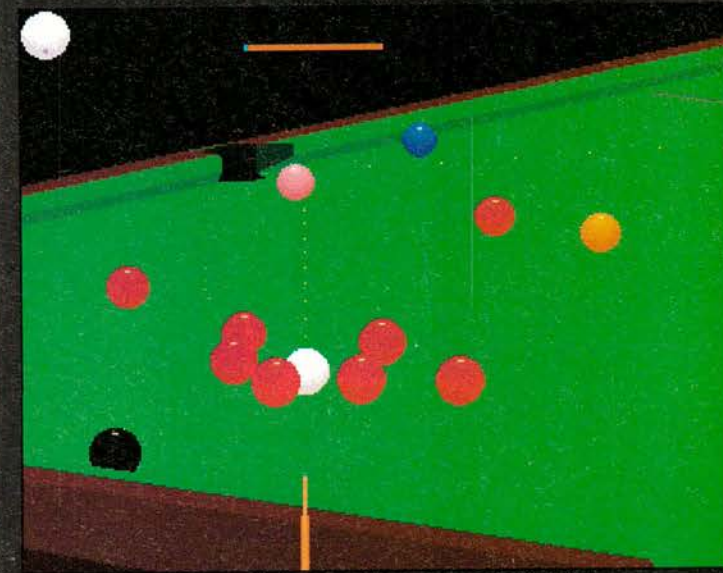
10 out of 10 Maths or English £25.95 each



Cataclysm £25.95



Cyber Chess £49.95



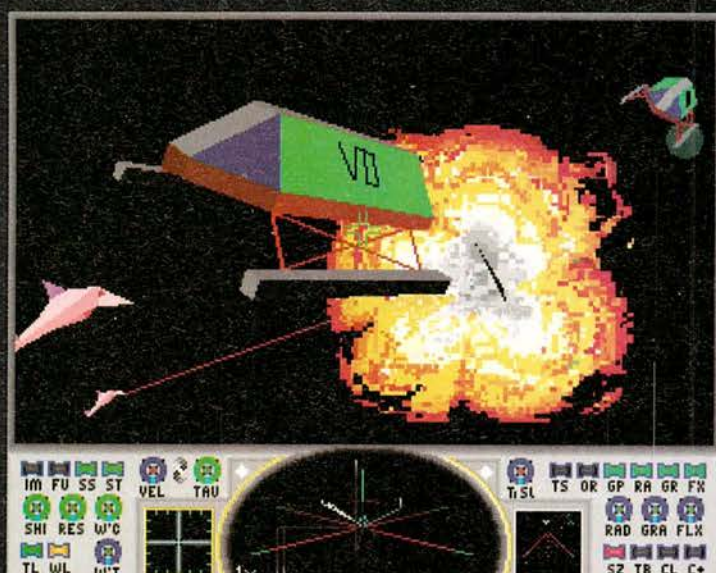
Break 147 & Superpool £34.95

PRODUCED by The Fourth Dimension THE 32-bit Acorn Games SPECIALISTS

For All 32-bit RISC Machines



Dungeon £34.95 Requires 2Mb Minimum (Hopefully Oct)



Black Angel £34.95

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It is the cheapest product which is free. You pay for the two most expensive ones.

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The cheapest two products are free. You pay for the three most expensive ones.

(The above unbeatable special offers include all products produced by The Fourth Dimension & Triple R Education)

MUST End.....24th December 1992

SPECIALIST Acorn 32-bit Software

ALL of the software shown is available for the following 32-bit Acorn machines: all A3000s, A3010s, A3020s, A4000s, A5000s and the Archimedes 300 & 400 Series. Each game is the result of years of dedicated Acorn 32-bit programming. Our aim right from the very start of every game is to produce software which truly exploits 32-bit power. Furthermore, many also boast enhanced modes for both faster processors and extra RAM.

** Game titles followed by these symbols require 2Mb minimum with RISC OS 3.
(This is due to the applications in-built into this new operating system).

HOW TO ORDER

Simply send us a quick letter or give us a ring telling us the software you would like, your name and address, and payment via cheque, postal order or ACCESS or VISA card details. Prices include VAT and postage & packing is free in the UK.

The 4th Dimension, 1 Percy Street, Sheffield, S3 8AU.
Telephone (0742) 769950 or 700661.



Galactic Dan £25.95 (Hopefully October '92)



Saloon Cars DELUXE £34.95 Extra Courses £19.95

Driving range

Mike Cook takes another delve into his postbag

I HAVE a Master with a dual 5.25in switchable 40/80 track disk drive and recently purchased a single 3.5in disk drive so that I could write files to 3.5in disks for subsequent reading on an Archimedes.

As the Master has only one disk drive socket – and not wanting to keep unplugging the 5.25in drives to use the 3.5in one and vice versa – I am building a simple small switching box which has a 34-way ribbon cable with appropriate female connector which is inserted into the Master's disk drive socket.

The female connectors on the end of the ribbon cables from the 5.25in and 3.5in disk drives are inserted into male connectors recessed in the top of the switching box which also contains four double-throw toggle switches.

Within in the box, wire 10 in the ribbon cable from the Master – drive 0 select – is cut and soldered to one of the two central tags of toggle switch 1 and wire 12 – drive 1 select – is cut and soldered to one of the two central tags of toggle switch 3. The other central tags on both these toggle switches are commonly joined on to wire 11 – ground – on the ribbon cable.

Thus, one of these switches will independently direct either drive 0 select to the 5.25in drives and ground to the 3.5in drive or ground to the 5.25in drives and drive 0

select to the 3.5in drives. The other switch will similarly independently direct wither drive 1 select to the 5.25 in drives and ground to the 3.5in drives or vice versa.

The other two toggle switches, one for the 5.25in drives and one for the 3.5in drives, allow either the left hand drive of a pair to be drive 0 and the right-hand drive to be drive 1 or vice versa. This is a more sophisticated version of Watford Electronic's Dataduck which is only designed for two single drives.

However, as my knowledge of electronics does not stretch to how disk drives work, I would like a second opinion. For example, do both drive types contain bus terminated resistor packs which will conflict on switching the drives?

Looking into Watford's User Port Splitter Unit and seeing the number of ICs, resistors and other components made me wonder if my switch could be this simple. – A. Curtis, Redbridge, Essex.

● *Yes, you have the right idea here. It is likely that both sets of drives have pull up resistors in them and so you must make arrangements to have only one set in at a time.*

In fact you might just get away with using the system with both resistor packs in but you would be on the edge of working.

Disk drive splitters are simpler to

design than User Port splitters because the disk drive bus is designed to be a bus. That means that the direction of each signal is fixed.

To split the User Port you must remember that each bit can be an input or an output. Therefore when you plug in two devices you have to make sure that each bit is isolated and has a switchable bi-directional buffer. That's why there are so many chips inside the Watford product.

Sleep watch

I AM doing a project which will involve measuring the breathing-rate of a person while awake and asleep. Ideally, I wish to be able to use my BBC B computer to give an alarm when the subject reached a pre-determined breathing rate.

Are there any interfaces on the market that will enable me to do this? I know they exist for measuring temperature and other parameters.

Of course, safety is paramount, as the subject will need to be wired up to the computer. I hope that you can advise me. – John Pyle, Ipswich.

● *I did see a breathing monitor in a premature baby unit once. However, all that did was monitor any slight movement and ring an alarm if the*

AGENDA

- Monitoring patients
- Accessing 5.25 and 3.5in drives
- Improving colour printing
- Faulty power supplies
- Fix for no windows
- Micro in time freeze
- Disk fault solution

High inertial shock treatment

ON a few occasions I have powered up without a disk in the drive to be met with:

Address Exception at 80304FD8 (Error No. & 80000003)

which is followed by the command line prompt. I have tried most usual ways to reset and enter the Desktop but all with the same result. I can catalogue the disks, enter Basic and run programs not needing the Desktop, but with those that do I sometimes get:

Illegal Window Handle (Error &288).

Switching on with R or Delete held down did nothing, so in sheer desperation I raised the front of the computer half-an-inch and let it drop on to the desk.

I know that this is not to be recommended but to my surprise back came the desktop set to the factory defaults and now all seems to be well.

But what do you think was wrong? – Allan Williams, Chudleigh, Newton Abbot.

● *Your repair techniques are not quite as unorthodox as you may think – I remember that during one of the Apollo flights to the moon*

NASA told the astronauts to thump a camera that was not working. However, knowing NASA they couldn't simply say hit it, they told them to apply a high inertial shock.

The simple answer to what was wrong with your computer was a loose connection, either a flying lead or an IC socket. Normally, you would not have to resort to such drastic measures

The first thing a service engineer does when confronted with a faulty computer is to press components down and generally jiggle the board about. It's the computer equivalent of laying on of hands and it is surprising how often it works.

► baby was still for a set length of time.

As I see it you have two options: You could try to monitor the breath coming out of the mouth or the movement of the stomach. Either way your subjects/victims are going to be rather uncomfortable while they sleep.

You can get paddle sensors for monitoring gas flow. These work by driving a paddle round and that breaks a beam in an optical slot detector. What you would do is monitor the periods of direction reversal.

You can get these devices from Radio Spares but they are not cheap. The low-cost ones are about £20 and the better ones come in at £80.

A much cheaper alternative might be to make your own movement detector using conducting foam. You could use its change in resistance to measure the fact that movement was taking place.

Look at the November '86 Body Build article for more information about using conducting foam.

You can write to Mike Cook c/o Acorn Computing, Europa House, Adlington Park, Macclesfield SK10 4NP.

He will answer any questions about difficulties you are having with your machines, mainly those to do with hardware. If you want a personal reply ensure that you enclose an SAE with your letter.

Bad colour

I AM having problems with colour printing on my Epson JX80. I cannot get all the colours to print properly as they always have black dots

in them or white spaces.

When doing a test print the results are beautiful and in good colours. I have tried changing the palette and am having some success, but not much. Could you also explain how to get the print darker? – Peter Jordan, Greenham, Berks.

● The Epson JX80 is a low-cost colour ribbon printer and as such only has a limited range of colours it can reproduce. In order to try to match the shades produced by the computer the printer drive software mixes different

dots of colour together.

This is what you are seeing because the dot size is quite large. If you view your printout at a distance it looks less mottled. If you use only pure saturated colours this would not occur at all. The other alternative is to use another printer driver, one that allows you to specify the dot pattern.

Colour ribbon printers normally print in a very light tone, because the ribbon dries out and less ink is transferred. There are two ways to improve this: A printer driver that allows you to specify multiple passes so that it overprints each line several times, or get a new ribbon or freshen up your old one.

One good trick is to open up the ribbon cartridge and give it a quick squirt of WD40, then close it up and let it stand overnight. You would think that the colours would run together. I did, but I am informed that it works quite well.

No power

JUST recently a strange fault has started on my Model B – it won't power up when switched on. The computer is about nine years old and has a Solidisk DFS and Disc Doctor plus Dumpout 3 roms fitted.

One way to get it to work is to keep switching the micro on and off a few times, although when it does power up the disk drive will not work until it is switched off and on again. Also on occasions, if switch on once and leave for several minutes, it powers up on its own and works perfectly.

I have tried the above with the disk drive disconnected but it makes no difference. Could you tell me what would cause such a fault and would it be possible to do the repairs myself? – P. H. Kemp, Mexborough, South Yorkshire.

● The BBC Micro, in common with most computers, uses a switched mode

power supply. These can be a little tricky to start up because of a power supply fault or leakage conditions on the power line. For example if I connect my old 5.25in disk drives to my A310 and have the disks powered up the A310 will not turn on.

However, you can get similar faults with a faulty supply. The test would be to disconnect the computer from the supply and see if the power unit itself started up correctly. If you are still having the problem the supply is at fault.

About 80 per cent of problems like this are caused by the mains switch on the back of the computer. If you're feeling competent you can check with a neon screwdriver or voltmeter that when it is switched on, mains is passing through. If this is not the case you will have to get the power supply replaced as Acorn service stations do not repair these as they are very tricky to check.

Single or double?

WITH reference to your reply to Geoffrey Willis from Bournemouth in the August issue, the AP3 is a double-sided drive and I have been using the same drive on my A3000 for 18 months.

I purchased the Cumana second drive interface from a local dealer but the drive didn't work. The dealer made a minor alteration to make it work and it is still going strong.

The AP3 drive will act as a second drive as it has its own power supply and I used it like this until I bought a Pres System Housing and monitor stand.

But I am experiencing a problem for the second time in three months – the clock chip has expired again. Do you think that there could be a problem somewhere else in the machine?

The problem is that the clock cannot be altered to the correct time – it is set at 22 July 1992, 10.05pm. – Ralph Sillett, Penkridge, Staffs.

● Yes I have heard that the later Electron disk drives were double-sided but the one I had was definitely a single-sided drive. To find out which one you have look at the free space on a freshly formatted disk. If it is around 300k you have a single sided drive, you get over 600k with a double-sided drive.

The problem with your real-time clock is that it has got itself into a funny mode – probably by putting something on the I²C interface bus. In these situations remove the battery and short out pins 4 and 8 on the PCF8583 chip – it's the only 8-pin chip I think.

Dirty filters causing disk faults

MY A410/1 is two and a half years old and was supplied with 4Mb ram and a 50Mb Rodime hard disk and I have always parked the heads.

If I verify the disk when the computer is first switched on in the morning it verifies with retries although it sometimes verifies OK. If I repeat after an hour it produces disk errors and after two hours there are even more disk errors.

The addresses at which the retries and errors occur remain fairly constant, although a success today could be an error tomorrow.

What's wrong? If it would help to reformat it could you tell me where I could get hold of a formatting program as one was not supplied? – Tony Shew, Rochester, Kent.

● What could be happening here is that as the drive heats up the magnetic field on the drives is getting weaker, producing a smaller signal and so introducing errors.

I would advise you to check that nothing is obscuring the fan and that there is good air flow around the computer. I heard of a case where the fan filter had got so blocked the hard disk overheated and crashed. Fan filters should be checked and cleaned at least once a year.

It would be a very good idea to reformat your disk and with a bit of luck that should cure your problem.

As to a formatting program, go back to your supplier and demand one, or at least ask politely.

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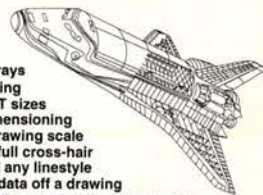
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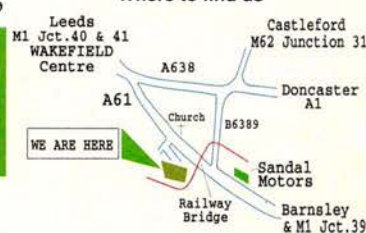
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A real application

Terry Blunt continues his step-by-step guide to HelixBasic programming

THROUGH this series we'll be developing the ScrapPad application started last month. This will behave very like a real scrap book and at first it will just allow short bits of text to be entered into numbered pages. As this isn't terribly useful in itself we will quickly add a saving and re-loading routine.

The next most obvious addition is to allow draw and sprite files to be dragged into pages and this will be followed by saving window displays as text and drawfiles. We will also see how to use the graphic commands to pretty things up.

ScrapPad will eventually be able to send complete window displays to the printer drivers, and we'll finish with some simple searching and indexing. Our application will then be complete but there will still be ample room for enhancements, such as short animated sequences and sound samples.

Before doing anything else we have to find a way of opening a window to display all the goodies. ScrapPad will need to be altered in two ways for this: The first is to alter the icon bar information and the second is to define the window itself.

Install the Helix Editor on the iconbar and drag the ScrapPad application on to it. This will open up the main editing window as before. Double-click on *Iconbar Info* then drop the caret into the *Select Command* field.

Enter the command `OPENWINDOW main`. This tells Helix that when your user clicks with *Select* on the iconbar icon the window called *main* is to be opened. Close this editing window again to update it.

Now we have to actually create the window called *main*. Bring up the menu in the main editing window and follow the *Create* arrow and chose *New Window*.

With an editing window opened

on this, you should first change the window name to *main*. This is very easy to forget, leaving you wondering why the window you just created doesn't appear to exist.

Bear in mind that this is the name, or handle, that the program will use to identify the window and has nothing to do with what will be displayed in the title bar. I chose the name to be meaningful to us, not the users of the application.

Beneath this are the figures that will determine the size limits, or work area, of the window. You can have negative numbers so that the centre of the work area is at X,Y coordinates 0,0 and in some applications the window could be very much larger than the screen area.

For our purposes we simply need a small fixed window so set the maximum X and Y values to 500, leaving the minimum values at 0.

Because we just want a small window, there is no real need for scroll bars, so click over the scroll

buttons to de-select them. This will make our window always open at its maximum size. The ScrapPad user will then be able to see all the contents of the window provided the window isn't obscured by any others.

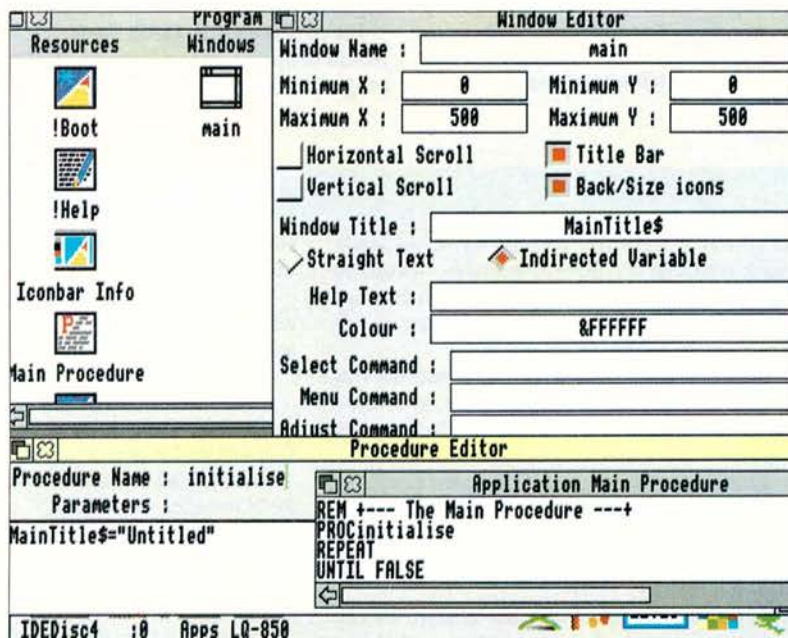
We'll keep the title bar and back icons, as we want a title. This could be simply a line of text but it is far more useful in a main window to have the name of a loaded file or *Untitled* if a new file is being created. For this reason the window editor allows you to set an *indirected* variable.

Indirecting text

You need to be very clear on this point. Straight text is character-by-character what will appear in the window title but an indirected variable is the name of a program variable that will hold the actual text. Click over the *Indirected Variable* button then enter



Terry Blunt is trained in electronic testing and design. He has been writing for computer magazines since 1983 and his book *The Archimedes Game Maker's Manual* was recently published by Sigma Press.



● The story of ScrapPad so far

HelixBasic can interrupt itself resulting in the most obscure bugs

► *MainTitle\$* in the field above it.

If you want to add help text you can put a short line in the next field. This will be displayed by the interactive help system when it is active, so should be brief and relevant to the main window of ScrapPad. I haven't done this in the example to keep the display simple and uncluttered. However, I would recommend that you get into the habit of doing this with all windows you define.

This is all we need to alter at the moment so close the window editor.

Initialising

If you were to try to run our application now you would get an error. This is because we haven't actually set our indirected window variable to anything. To do this we need an initialising procedure. Later we will need to set up other variables and constants and a procedure is a neat way of packaging these bits.

As before, you create this object from the main editing window. This time you chose *New Procedure*. The editing window for this is actually two linked windows. The upper one is for the name of the procedure and for any parameters you might need. The lower window is for the body of your routine.

Set the procedure title to *initialise*. At the moment we don't need any parameters so just hit Return twice to drop you into the main part of the window. Type in:

```
MainTitle$="Untitled"
```

then close the window. Unlike BBC Basic, you don't have to bother with DEF PROC and ENDPROC statements, as the editor will create the heading from the details you put in the upper window. It will also put the closing ENDPROC in.

Users of BBC Basic will be familiar with the idea of passing parameters in a procedure header. For those of you who aren't, the main reason for doing this is that the variables used are only a *copy* of the ones in the main program, and don't even need to have the same names. This means your routine can be totally self-contained, with no risk of using the wrong variable names.

Another point is that Helix Basic can interrupt itself, resulting in the most obscure bugs if say, a group of global strings are half way through being altered inside a procedure that gets interrupted for a call to update a display of those strings. As a general rule use only constants globally and pass other variables in through the header.

There is one more addition to make to ScrapPad before you can test the changes we've made. Our initialising procedure has to actually be called for before ScrapPad enters its main waiting loop.

If you look at the left hand column of the main window you will see an icon marked *Main procedure*. Double-click on this to open an editing window. You will see that it consists of an empty Repeat-Until loop.

Leave this as it is. Helix Basic would drop out of the bottom of the program if that wasn't there. In the

blank line above just enter:

```
PROCinitialise
```

Now you can close this window. Check that you haven't left any others open then save and run ScrapPad. You will find that you can now open the newly defined window, move it about and close it. There's nothing in our window yet, but we'll soon put that right. If you have problems, open up the editing windows again and compare them with the illustration.

If you like, you can open up the ScrapPad application and have a look at BasicProg as before. Again, you will see that there is very little there. All of the Wimp control details are handled for you by HelixBasic.

Last thoughts

You may like to play about with various bits of text and different colours in this window. If you look in the Helix reference manual you will see that there is a related text printing command called TEXTAREA. This allows you to put text in a box without having to worry about word wrapping. We will be using this later.

If you do make changes be sure to leave ScrapPad at the point we've developed it here, so that you can continue to follow the series. 

● So far we've only looked closely at the Wimp side of Helix. In part three next month we'll start to take a more detailed look at the programming side as well as widening our knowledge of the Wimp.

Writing in windows

HelixBasic handles text rather differently to BBC Basic. As Helix expects to put everything in windows it – quite reasonably – needs to know which window to put the text in. Secondly, there is no concept of a current colour, so you need to specify a colour as part of the printing command.

HelixBasic specifies colours as 24-bit numbers. In hexadecimal this works out as &bbgrr. For convenience Helix provides an extensive range of integer constant colour values, so it pays to use these where you can.

The text is printed in graphic coordinates, not character positions and calculations are based on the window work area, so in our example 0,0 is the bottom left corner of the window. This is unlikely to be at the bottom of the screen of course and may not even be in the visible part of a window that has scroll bars.

Just to show that we really do have control over the system, we can

start by defining the default front page of ScrapPad. Later on we will add to this considerably but for now we'll stick to simple text.

Create a new procedure in the ScrapPad application as you did with the initialising procedure but this time change the title to *front-page*. In the lower window enter:

```
TEXT main,red%,120,250,"Empty Scrap Pad".
```

This will do for now so close the editing window in the usual way.

Double click on the *Main Procedure* icon and insert a line between PROCinitialise and REPEAT. In this line enter *PROCfrontpage*. A point that isn't too obvious is that windows can be written to, drawn in or wiped clean without having to be opened for display. This is what we're doing in this instance. The window is only displayed when called for from the icon bar.

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KEYNOTE

If you have a sample editor that allows you to create envelopes for the samples – for example, Clares' Vox Box – use it to create a percussive envelope and use the sample with music which is to be played staccato. This is easier than changing notes from a quarter note, say, to an eighth note followed by a rest.

ONE of the great things about the Archimedes is its ability to play any type of sound simply by loading in new samples. This gives you an unlimited range of sounds – if you can sample it, you can use it.

A sample is a digitised representation of an audio waveform – the sound is converted into a series of numbers – and there is more than one way of performing the conversion. This means that there is more than one sample type and many sample player programs tend to use their own format.

If you haven't got the equipment to create your own samples, there are many available commercially and in the public domain.

People with access to a CD Rom could tune into Grooves from Optech (0252 714340) and also on the commercial side there's BrokenARM at 41 The Dell, Westbury-on-Trym, Bristol BS9 3UE.

Relocatable modules

There are three common sample formats: Signed Linear, Unsigned Linear and Logarithmic. You don't need to know the difference in order to use them – as long as the program you are using recognises them – but for the insatiably curious, Signed Linear represents samples as numbers from -128 to +127 and Unsigned Linear represents them from 0 to 255.

The Archimedes sound system uses the Logarithmic format but before any sample is used it must be converted into a Relocatable Module.

Most of the commercial sample manipulation/creation programs can convert between the different types of sample and save them as Modules.

So, using the program of your choice, you assemble the samples you want for a particular tune and save them off as Modules. You can load Modules by clicking on them and if you then press F12 and enter *VOICES you'll see all the sounds in the voice list.

Now you can run Maestro. Click on Instruments in the menu – the Instruments window will then stay on screen after the menu has closed – and select new sounds by clicking on the instrument names. The

The sound of

sounds will also be available for use with Rhapsody and can be selected with the Reassign option in the Stave menu in the usual way.

EMR's WFS

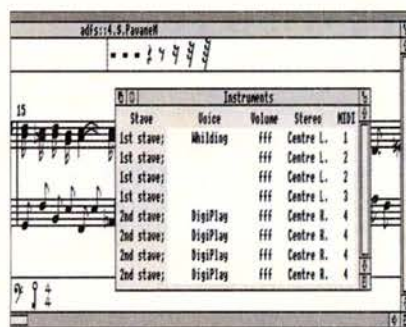
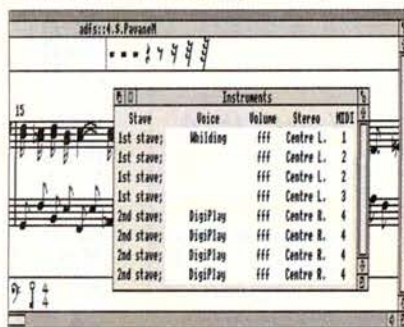
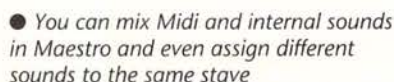
You might well be thinking that there should be an easier way to handle sounds. Well, EMR thought so, too, and developed the Waveform Filing System. It lets you create a list of up to 32 samples and save them as a WFS Voice Set which can be used in EMR programs as well as with Maestro and Rhapsody.

It can use EMR voices from the Creations Disk Library or samples created with EMR's SoundSynth. The EMR voices use a different tuning base to Acorn but you can select Acorn tuning by clicking the Acorn box. However, because of the tuning difference, it's not practical to use Acorn and EMR voices at the same time.

The WFS offers an easy way of organising sounds for use with the Arc's internal sound system without having to save groups of samples as Modules. Unfortunately, the WFS only recognises EMR samples so you still need a program such as SFXM which can save samples as WFS files – although it can save samples as Modules, too. On the free side there are sample



● **VOICES will list all the sounds loaded into the Arc. These can be used with Maestro, Rhapsody or any other program which uses the Arc's internal sounds*



- *Rhapsody lets you assign a Program Change Number to each stave so the required sound is selected on a connected Midi instrument every time you play*

samples

Ian Waugh continues his tutorial on making the most of music on your Acorn 32-bit machine

conversion programs in the public domain such as STConv which converts ST Tracker and Armadeus samples.

For a good range of PD samples, check out RML PD which has around a dozen disks of samples. Some are in Module format, others load into DS Edit – a PD sample editor. Equinox PD also has an interesting range of music and sample utilities too.

An interesting program on RML's SoundUtils disk, called STtoRhap, converts Sound Tracker files into Rhapsody format. Don't confuse Sound Tracker which is PD with Tracker which is a commercial sample-playing music construction program.

The conversion works surprisingly well although you will almost certainly have to edit something and assign suitable sounds to the staves. But this shouldn't take as long as entering a tune from scratch. It also gives you access to a large number of ready-made tunes as there are many Sound Tracker files in the public domain.

The Midi connection

Maestro can also playback music via Midi. If you have a Midi interface fitted then an extra column will appear on the extreme

right of the Instruments window. Here you can select a Midi channel for each of Maestro's eight voices.

You can mix Arc and Midi playback simply by selecting an Arc sound and a Midi channel. If you don't want the Arc to play, scroll to the blank instrument setting.

There are several Midi interfaces on the market for the Arc. Those by Acorn and EMR are probably the two most common ones although several others are also available. We'll look at Midi in greater detail later in the series but here are a few basics to get you going.

Midi can handle up to 16 different music parts which it transmits on 16 Midi channels – each playing a different sound on a connected Midi instrument. Most modern Midi instruments can play several different sounds at the same time. This is its multi-timbral ability – if it can play eight sounds at once it is said to be eight-part multi-timbral.

Don't confuse the ability to play different sounds with the ability to play lots of notes – an instrument's polyphony. Most modern instruments are at least 8- and typically 16-part multi-timbral and 16-, 24- or 32-note polyphonic.

Normally, each staff in a piece of music would play the same sound – all notes would play strings, piano

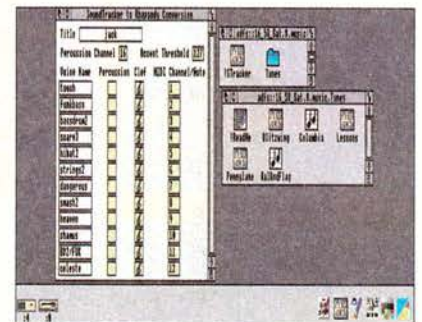
or flutes. However, this is not essential and with Maestro it's very easy to make different parts on the same staff play different sounds – Rhapsody expects all notes on the same staff to play with the same sound. Maestro uses the Archimedes internal sounds too which can create some interesting effects.

Different sounds are selected via the Program Change Numbers. Rhapsody lets you enter a Program Change Number for each staff which will automatically select that sound on a connected Midi instrument.

Maestro does not support Program Change Numbers so you select the sounds and assign them to the relevant Midi channels on the instrument before playing Maestro.

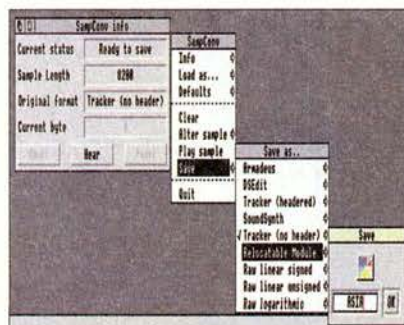
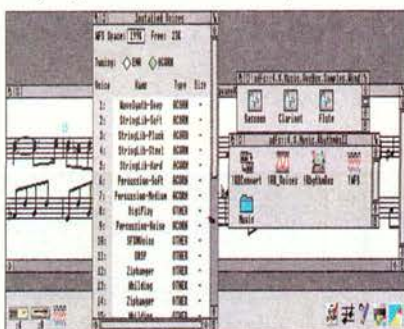
The procedure for doing this varies from one instrument to another although many have a Configuration or Multi set-up which stores voice and Midi channel settings for just such occasions.

Next month we'll travel further into the absorbing world of computer music.

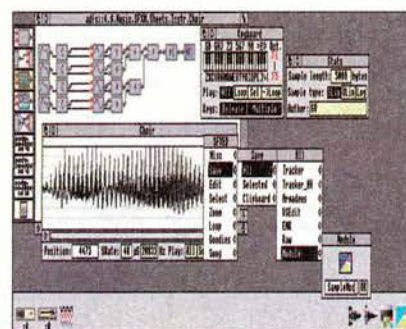


● STtoRhap converts Sound Tracker files into Rhapsody format. They will require some editing afterwards but it's quicker than entering a score from scratch

● EMR's WFS offers an easy way of grouping samples together although it only supports EMR's WFS sample format



● The SampConv program can save samples in a wide range of formats including Relocatable Modules although it didn't work with every sample it was asked to convert



● SFXM shows the sample type – Signed Linear, Unsigned Linear or Logarithmic – in the Stats window. It can also save the sample in a variety of formats including a Relocatable Module



A3010

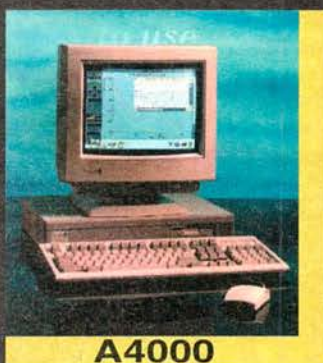
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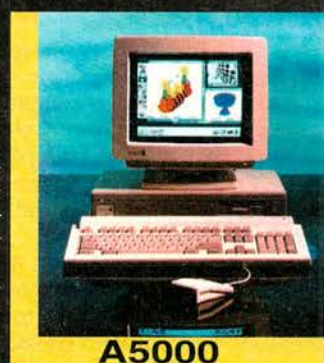
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Christmas creations

THERE are many possibilities for the production of Christmas cards. The design can be as complex as your time or skill allow, but once drawn, it can be used for cards, gift tags, small bags, place settings and so on.

The best place to start is to decide how the design will be printed. Monochrome might be best if you

individual Christmas cards.

You start with a simple line drawing of a horse using a fine painting tool – such as the smallest square pen option on Artisan II/Pro-Artisan.

This produces a line of even thickness – you don't have to be exact as extra lines or a few bumps can be removed or edited using the

Zoom option. It's better only to use this option for editing and not for drawing dot by dot. As well as being tedious, it doesn't give you a clear idea of the whole image.

Next add the rider and edit the lines where the figure overlaps the horse. Get used to saving your work every 10-15 minutes so you have a backup copy. Also, save your work in sequence – CARD1, CARD2 and so on – so you don't overwrite the last file.

You may want to go back a stage or bring back an element of the image you'd drawn over. You can delete some of the earlier images if you run out of disk space but you might like to keep all the work and animate it.

See through

With the full image completed, I repeated it twice to produce the three overlapping kings forming the basis of the card design. This procedure illustrates one of the most important features of painting on a computer – the ability to use transparent backgrounds.

Most paint packages allow you to set the background to transparent so that you can pick up the design and not the rectangle it occupies. For example, if you cut out the king on horseback as a solid rectangle the edges of the white rectangle would obscure the other figures.

The second problem is that if you set the transparent colour to white and then overlap the figures you'll

Steve Bruntlett shows you how to produce your very own personal greetings

be able to see through them completely.

To solve this, flood fill the background with a colour other than your original background and the colour you're drawing with and set that colour to be transparent. This will give you a solid black outline with solid white infill but on a transparent background which can be easily cut and overlapped.

The only problem you may still have is that when you try and flood fill the background the colour leaks. Undo the flood fill or refill in white and then Zoom to fill in any gaps in the outline of your drawing before flood filling the background again.

I altered the copied figures and horses so that they don't look the same. Using the same figure with minor modifications is a good way to get enough variation without spending hours drawing each figure individually.

The other way of saving time is to ➤

● Digitised window design



● Now create poster, tags or place mats



● Final head about to be added

only have access to a dot-matrix printer. However, you could take your colour creations to a bureau specialising in Archimedes work – try BirdTech (0263 70669) or Arch Images (0733 315424).

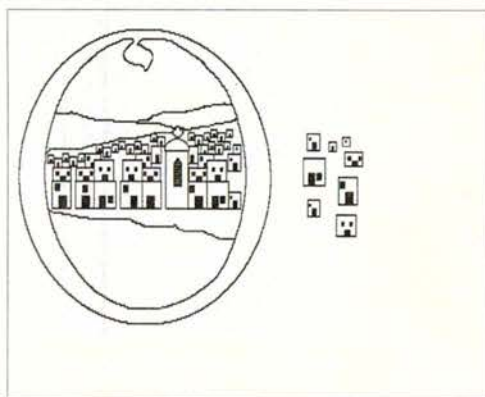
If you're a bit reluctant to start from scratch you could use clip art – Sherston Software Christmas Allsorts (0666 840433) is particularly good.

We are going to produce one design from scratch using only a fine black line and another transforming an initial poor resolution monochrome digitised image into a highly coloured stained glass window.

All your own work

The first design was based on the Poor Man's Bible stained glass window in Canterbury Cathedral but wasn't intended to be an exact replica, rather a basic outline drawing which could be hand painted resulting in highly





● Outline version ready for printing

- use a single flower motif and repeat to give a varied border to the card. You can copy the motif a number of times and flip the copies horizontally and vertically. These variations can be pasted into position selecting the required motifs one by one.

Now you have all the elements it is just a question of positioning. You could add colour on the computer, however, if you leave the card design in black outline then you can have the design



● Black and white leaved design

photocopied on to cards and paint them individually. This is cheaper than colour printouts and perhaps more personal.

Using scanned images

Perhaps more challenging is using a digitised illustration. If you digitise or scan in monochrome you may end up with grey shades which you don't want.

So try and digitise in a two-colour mode or scan and save the sprite in a two-colour mode such as Mode 0. This also has the added effect that it saves disk space if using a package like Revelation which operates in any mode.

Using packages like Atelier, Artisan or Pro-Artisan you'll have to use Mode 12 or 15 but you can save the images in a compressed form

which will similarly save disk space.

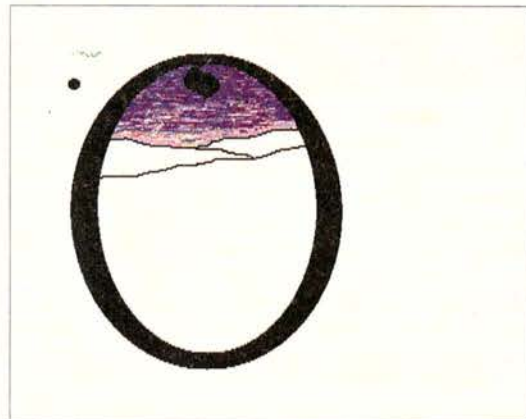
If the digitised or scanned image has grey shades that you need to get rid of, use a colour swap tool which will change some of the grey shades black and some white depending on the amount of black you need to clarify the shapes within the design. The resulting image can then be tidied up by eye and saved again before you start filling in colour.

When using colour bear in mind the apparently limited coloured range of stained glass windows and the final printout. If you're printing out on a colour inkjet printer, dark colours may bleed when printed and therefore need a lighter colour for the fill.

If you're photographing the design and having colour prints made – yet another way of producing cards – the colours can be as rich as you want.

You could print the design on colour inkjet acetate – 50p for an A4 sheet – and tape the resulting transparencies in a card mount to display them in a window to great effect. Once you have the final

● Beginnings of decorated illuminated letter



design you can print it horizontally or vertically.

Older packages might require you to rotate the image through 90 degrees and enlarge it to fit the screen before printing. This will give you a decent size portrait format image.

To produce more than just a range of different size designs for Christmas cards you can reduce them to perhaps a quarter size and use cut and paste options to produce a screenful of images to use as gift tags.

Smaller images can also be used as a motif for place settings or invitations.

● Next month: We'll be starting the year off with a little gardening.

Alternative creations

Christmas card designs can be effective and simple too. A single capital letter drawn in a fancy font using !DrawPlus can be converted to a graphic object, grabbed and dropped into a paint package.

The design here was originally intended to be printed in colour hence the beginnings of a textured sky. The next stage was to add some preliminary buildings drawn very simply using outline rectangles for the main shape and solid black rectangles for the windows.

The foreground detail was added next but the whole effect looked too dark so I decided to produce a black outline which could be hand painted. The solid black letter was *edge detected* to produce an outline. Alternatively you could go back to !DrawPlus and produce an outline version of the original.

Experiment with the different options your paint package offers and try as many different ways of producing cards as you can and see which are cost effective and which give you the effect you're after. Wouldn't it be nice if you could achieve both at the same time.

imagery

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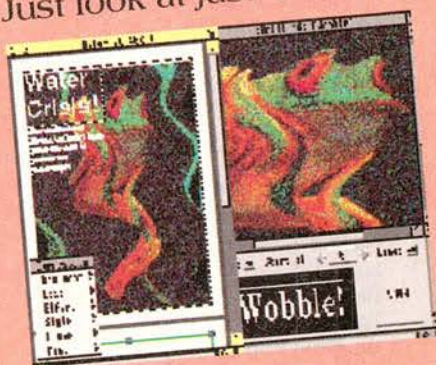
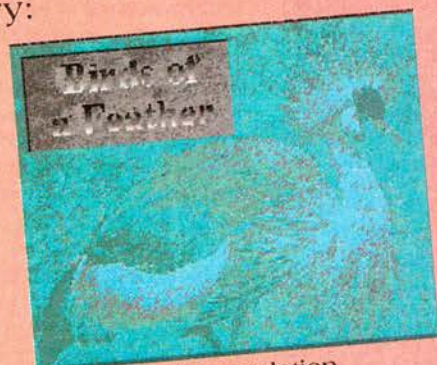


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Word power



Clem Vogler has taught physics, electronics and computing at a number of schools and colleges.

His industry pedigree comes from working as a standards physicist for Marconi and as a test engineer working on spectrum analysers and scanning electron microscopes.

WITH the advent of simple editors and comprehensive DTP packages is the day of the wordprocessor at an end? A lot of people want to manipulate text rather than just enter and print it, but don't feel the need or are intimidated by the range of options a desktop publisher offers.

Into this market come Minerva and Icon Technology who have updated their existing wordprocessors to meet the needs of an increasing demanding Acorn buyer. What have they achieved?

Easiword

This is a beginner's wordprocessor designed to be used either on its own or as part of Minerva's Desktop Office suite of integrated software. Since Desktop Office already comes with a wordprocessor called DTO-Word, readers may wonder why Minerva are offering an alternative. The reason is that DTO-Word requires extensive use of control codes to do things like turn on italics or indent a line.

Many users, myself included, prefer a wysiwyg – what you see is what you get – approach. Easiword attempts to provide this. Because some old Wordwise fans like using control codes, DTO-Word continues

PRODUCT SPOTLIGHT

Product: Easiword
Price: £59
Supplier: Minerva, Minerva House,
Baring Crescent, Exeter EX1 1TL.
Tel: 0392 437756.

Product: EasiWriter
Price: £150
Product: TechWriter
Price: £250
Requirements: 2Mb ram
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Street, Leicester LE2 7DH.
Tel: 0533 546225

to be available. Since the reason for introducing Easiword was to provide a wysiwyg wordprocessor, how accurately does the screen display reflect the resulting hard-copy?

The following features are correctly represented on screen: Bold, italic, underline, superscript and subscript. Provided you don't exceed the limits of your printer carriage, all characters shown on a single line are printed on a single line. Justification is correctly represented.

On the other hand, the screen display does not show the character pitch – width. You have a choice of Condensed, Elite, Pica, or Expanded. Your choice determines

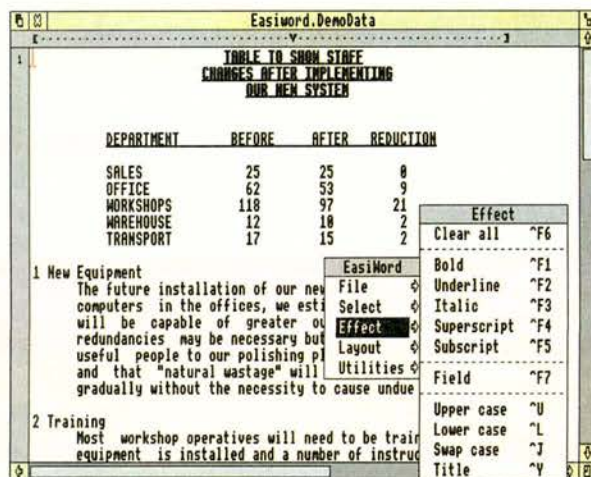
the number of characters printed in a full line but all are shown at the standard pitch of the system font on the screen.

Easiword uses rulers to effect a limited range of style changes, consisting of alterations to pitch, tab-setting, line length and justification. As these are set by the current ruler, you cannot make changes within a line – so you can't mix condensed and normal text on the same line.

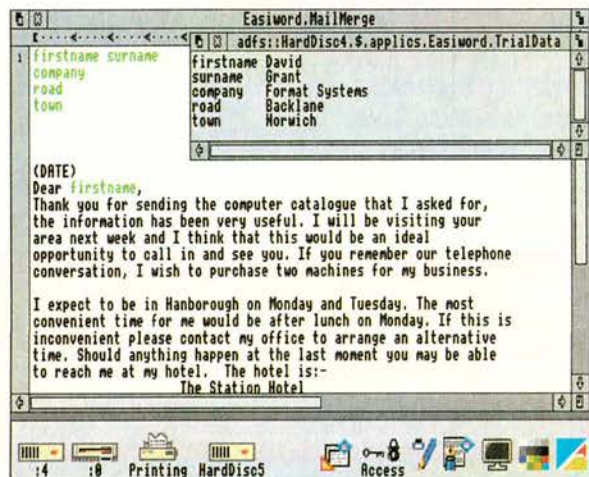
Basic wordprocessing features like wordwrap, cut and paste, search and replace are provided. Page breaks and ruler scope can be viewed. Because it is character based, Easiword can't use proportional type and you have no access to all those exciting fonts in your font directory.

If you try to underline more than a single line the underscore will run untidily to the left-hand margin. There is no automatic hyphenation and no facility to incorporate the system date automatically.

Printing uses the Risc OS drivers and there is an option to set the number of copies. That's it. No facility to set margins or print part of a document or select draft quality. You can only do these things if your printer driver makes provision for them and saving is



● Extensive menu options



● Mail merge from file in DTO-Base

Clem Vogler, Paul Hendy and Bruce Goatly investigate some of the runners in the race for champion wordprocessor

worse. You can save either as a text file or as a FirstWord Plus compatible file – though why this elderly and widely disliked wordprocessor should be singled out is a mystery.

If you save from the pop-up menu, the file name and path under which you save are immediately forgotten by Easiword, so that when you come to save again, it can't prompt you and you have to enter both afresh. Later, I discovered an alternative way of saving, as a FirstWord Plus file only, using function keys, which does remember the path.

There is a spelling checker with a

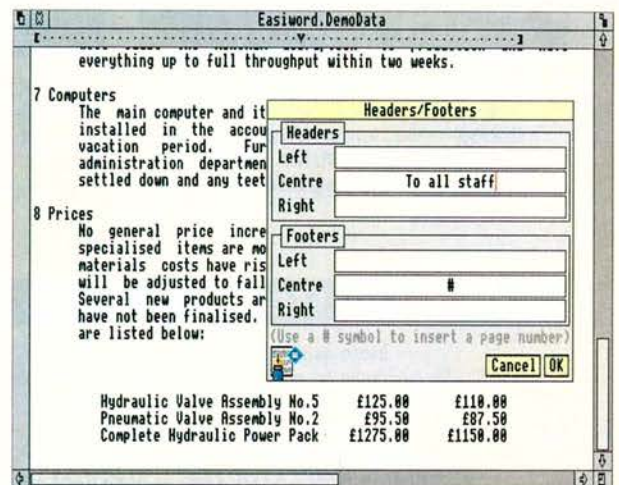
check as you type facility and a mail-merge option which imports data from the related database management package, DTO-Base. It's easy to use and works properly, though you can't preview the merged document on screen.

Summing up

Easiword is a character-based wordprocessor which severely limits its ability to be truly wysiwyg. It gets by through offering a limited range of features and relying on the relative sophistication of the Arc's character generator.

Some people will be quite happy with a no-frills package. Advanced users will find Easiword too restrictive, but for those with modest needs, the Desktop Office package, including Easiword, offers a balanced and easily used software suite.

Clem Vogler



● Headers and footers can be assigned

EasiWriter

ANY wordprocessor hoping to capture part of the Archimedes market has got to fight some formidable opposition, principally Impression. Such an easy-to-use yet feature-packed product is a tough act to follow and Icon Technology

are to be praised for putting forward a challenger.

It has been said that the first wordprocessor you use is always the best. This being so, the decision by Acorn to bundle EasiWriter with the new machines is going to increase

Icon's share of the current market and also produce a faithful band of users willing to upgrade to the latest version.

EasiWriter is a full-featured wordprocessor with extra facilities that possibly place it in the class of the *document processor*. Icon really score with this product by starting the manual with a simple tutorial. This immediately guides you

● You can apply different styles to text

Characters or graphics?

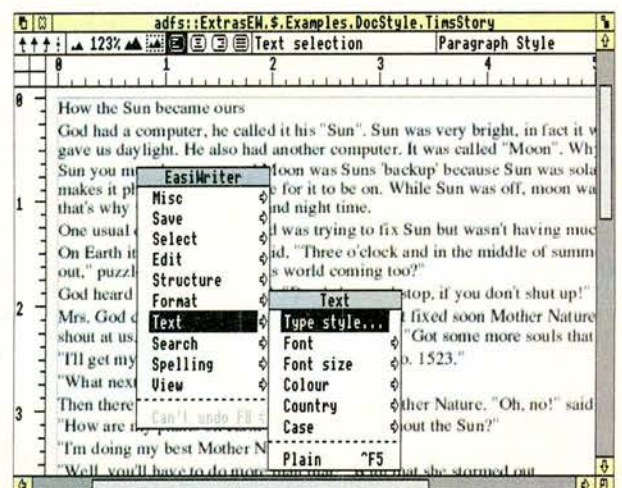
Wordprocessors can be character or graphics-based. Both use one byte of memory to store each character, using its Ascii code, but the character variety can only display one basic size and font – using the system font on Arc machines.

Character-based software is common in offices, where the cost savings in providing character-only displays and the minimisation of the amount of data shuttled across the office network, maximises productivity and keeps costs down. Industry standard wordprocessor packages like WordPerfect are character based.

Graphics-based software is used for art, computer aided design and desktop publishing or wherever you need fine control over the displayed image. Each character may be *cached* as a graphic image requiring many bytes allowing total flexibility over how a character is displayed.

Any font can be used, at any size and fonts can be stretched or compressed along either axis. They can also be coloured, rotated, inverted or simply rebuilt, pixel by pixel. The price you pay for this flexibility is in the demands on memory and processor time that such elaboration entails.

Font handling is the Arc's strength. Its fast Risc processor and cleverly designed font display software make it the preferred choice for such applications.



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through the system – perhaps glossing over the weaker features – and convincing you that this is the product for you.

It is only after using the program for some time that you begin to wonder if certain aspects could be improved. The manual itself is well-written but is spoilt by the illustrations being too small. There are examples of mail-merged documents on page 162 that require very careful inspection before you can determine what is going on.

Installation is simply a matter of typing in registration details and then copying to the hard disk – though it will work from floppies. Once installed the EasiWriter icon appears on the iconbar, and clicking this opens a new blank document.

From here you can start typing straight away and use EasiWriter simply as a normal wordprocessor. However, to do so would be to ignore some very powerful features, particularly with regard to styles.

EasiWriter has two types of style: Text and paragraph. The former allows you to add effects – bold, italic and so on – to a selected portion of text, while the latter is concerned with the overall layout of the document. It detects the end of a paragraph by the Return character giving EasiWriter an advantage over Impression – it can format properly outdented multi-line headings. As if to emphasise this point the EasiWriter manual is laid out in this style.

To be fair to Impression, its advantage is that you can overlay one style with another, without the boundaries imposed by Returns.

I found the design of styles quite complex, with features seemingly

buried in different menus. Eventually a consistency of menu design does appear but it was not quite as user-friendly as I would have liked – as a trivial example I found two *Insert* menu options and had to remember which menu contained the one I needed.

In addition to styles, users can adjust the format of any part of the text in a variety of ways by adjusting the ruler displayed at the top of the screen, or by selecting one of the alignment buttons above the ruler.

In the original review of EasiWriter back in 1991 I criticised the lack of indication showing where any changes had been made and this criticism still stands. For example, if you adjust the ruler part way through a document there is no indication until you move the cursor backwards and forward to find the spot where the ruler changes shape. However, the ability to adjust the ruler immediately without having to edit a style is useful.

Graphics handling in EasiWriter is not as comprehensive as Impression and felt more jerky. One advantage Icon have included however is the ability to automatically position captions to figures, and their alignment can be adjusted in a variety of ways, though the tutorial gives a rather tortuous example.

Table-handling is a dream. It is a simple matter to construct quite complex tables of text and figures and then add borders or lines, adjust the alignment of different

columns and then position the table with respect to the text.

The overall design of a document is controlled by the Page setup dialogue, but there is only one master page per document. The parameters are adjustable at any time so that if you find that you need more left



● You can specify the country to modify the text

margin it is a simple matter to adjust it – by dragging the cursor if you prefer, nice – and the document will then automatically re-format.

Rather than have several master pages available per document Icon have opted to provide a system of stationery pads – template documents which you can design, save, and then select as required for a particular document. Thus if you are writing a number of technical reports you can design a report template, and then select it for each new document, ensuring consistency of style and layout.

It is almost *de rigueur* that wordprocessors have spelling checkers and mail-mergers and EasiWriter is no exception. I found its mail-merger very easy to operate and the second example in the Merge tutorial relating to examination results will be welcome to many readers in staffrooms. However, it does not seem possible to do conditional mail-merging so the datafile would need to be doctored to include only those records intended for the mailshot.

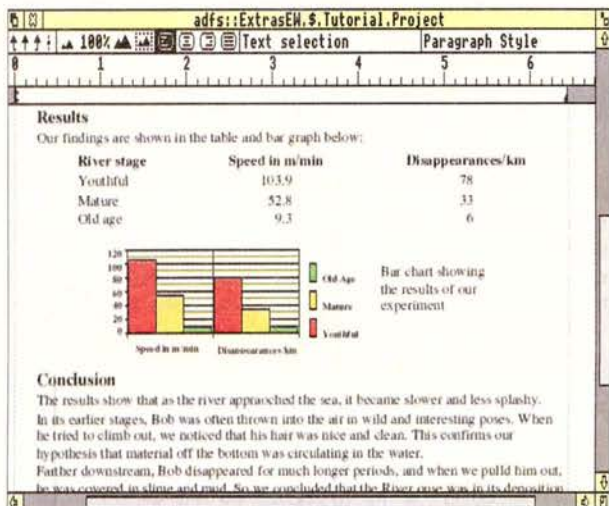
Summing up

In conclusion, EasiWriter is a powerful wordprocessor with many useful features. Though well-written the manual needs more detail in parts to enable users to take advantage of the features the program offers. It is not as powerful or as sophisticated as Impression, but its general ease of use, combined particularly with its table and style features makes it a leading player on the wordprocessing stage.

Paul Hendy



Paul Hendy has had over 170 articles on computing and electronics published, and has written training manuals for many software packages plus two books *Good Impression* and *First Impression* for Impression users.



● Graphics and columns can be incorporated

TechWriter	Maths	Operators
Misc ⇄	Operators ⇄	Integral ^I
Save ⇄	Superscript ^S	Sum ^W
Select ⇄	Subscript ^L	Product ^P
Edit ⇄	Above ^H	Union ^U
Structure ⇄	Below ^B	Intersection ^Y
Maths ⇄	Fraction ^F	Closed line integral
Format ⇄	Root ^R	Closed area integral
Text ⇄	Delimiters ^D	Closed vol. integral
Search ⇄	Matrix ^O ⇄	Matrix
Spelling ⇄	Expression ^E	New matrix
View ⇄	Function ^K	Add row ⇄
Undo F8 ⇄	Text ^T	Add column ⇄
	Set alignment ^J	Span
	Equation number ^N	Size
	Size ⇄	✓ Display F6
	Kern ⇄	Text
		Script
		Script script

● The main menu with a composite of the submenus available



Bruce Goatly is Head of Publishing at Britain's leading scientific society. In the 15 years he has worked there he has seen typesetting technology move from hot metal to desktop publishing and has introduced DTP processes to his office. He is a regular contributor to *Acorn Computing* and his book, *Desktop Publishing on the Archimedes*, has been well received.

TechWriter

As someone who works in professional mathematical publishing, I can vouch for the fact that mathematical typesetting the traditional way calls for great expertise and takes ages to do to a high standard.

Much of the skill lies in getting the spacing and layout exactly right, quite apart from the wide variety of symbols used.

TechWriter is an extended version of EasiWriter and brings the production of mathematical output within the reach of anyone who needs it – all the way from teachers preparing school algebra notes to academics writing advanced research papers. It also offers footnote and endnote facilities not

available in EasiWriter, which are valuable in professional writing.

The software comes with two new fonts – MathPhys and MathPhys.Italic – to cater for the Greek and other symbols needed for mathematical work. The program caters for superscripts and subscripts, as it does for accents or characters above or below other characters or expressions.

Just as EasiWriter *knows about* structures such as sections, lists and tables, TechWriter *understands* equations and specialised mathematical concepts like fractions and matrices.

It automatically turns hyphens which appear in equations into minus signs and puts letters into

italics unless you specify otherwise, and also has a good grasp of subtleties like the correct spacing of items within equations. For example it will space the unary minus sign in $-b$ differently from the binary one in $a-b$.

By convention, the size of fractions and operators such as differentials are different when embedded in a line of text from when they are displayed on separate lines of their own. The software gets this right for most purposes but the automatic treatment can be overruled if necessary by choosing a menu option.

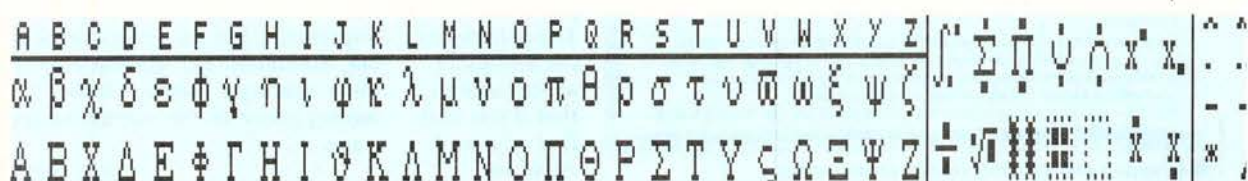
The main menu has only one item more than in EasiWriter: A Maths option. Within the Maths submenu, however, there are many items – Figure 1 gives a taste of the variety within this area.

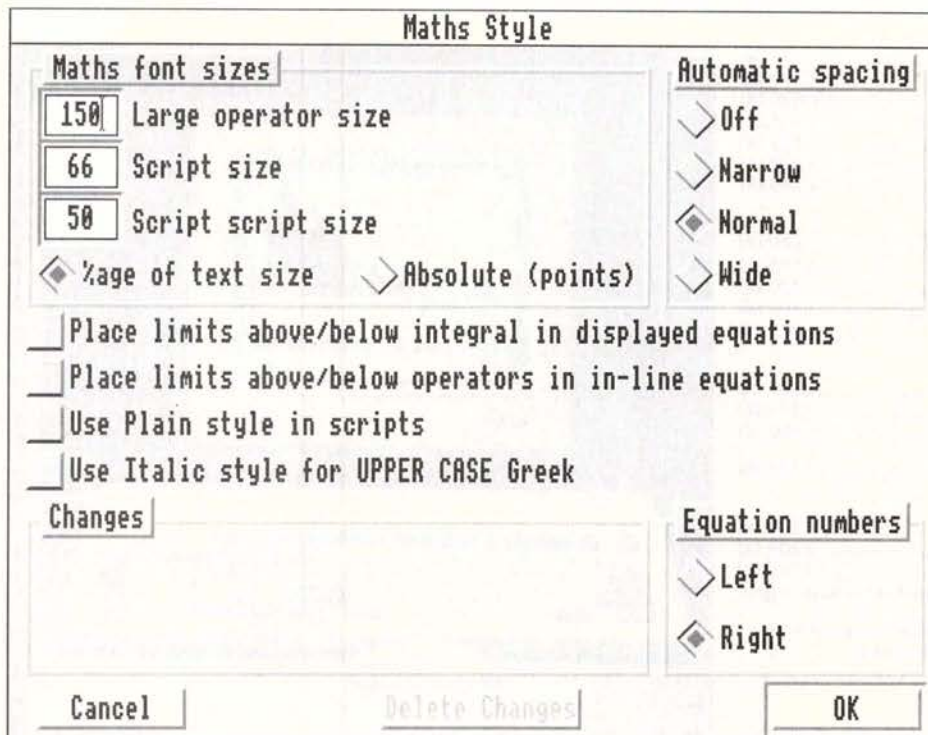
For those of a more apprehensive constitution there is also a visual way of accessing these items. A *Greek palette* at the top of the document window contains not only the entire Greek alphabet but also almost all of the commands, structures and operators as well as a selection of miscellaneous symbols for which the Alt key would otherwise be needed.

As Figure 2 shows, the palette is very wide, so TechWriter automatically scrolls it horizontally as required. Just point and click for your next character – a supremely visual approach, though slower than typing.

For more experienced users the third method is quickest – a comprehensive set of key shortcuts. If you keep the Greek palette visible while you are learning these shortcuts you can see the keys used for the Greek letters while the menu lists show most of the other shortcuts. Once learnt you can turn out complex maths at a fair rate.

For me the most impressive parts of TechWriter are the matrix facility – based on the table structure – and the ability to use characters that stretch vertically or horizontally to enclose expressions as they grow. For instance an integral sign grows if you put a fraction within the expression it contains and so do





● Setting your own equation style

brackets delimiting an expression or a matrix.

It's also impressive to see fractions created as you type. The ease with which upper and lower limits to integrals and summations can be applied is an example of the work that has gone into making the software so intuitive to use.

After inserting the operator the cursor is positioned ready for the lower limit, Return takes you to the upper one, and another Return places you on the baseline again.

Another neat touch is the ability to align successive equations so that equals or other signs are lined up vertically. There is an option to specify whether equation numbers are placed to the left or the right of equations. This and other aspects of equations are controlled from the Maths Style dialogue box shown in Figure III.

Although the spacing is taken care of automatically, for those occasions when some touching up is needed between characters you can move them together or apart with the kern command. On my

wish list for a future version is the addition of vertical kerning.

Plans are in hand for the next version of TechWriter and I understand that the intention is to provide output in TeX format – a standardised and powerful mathematical typesetting language – which will give access to the wider mathematical fraternity.

An imminent feature for Risc OS 3 users is the ability to save equations in Draw format. At the risk of sounding ungracious, other things I personally would like to see in any new version are abbreviation expansion, an optional scroll bar on the Greek palette, and the ability to set alignment points within a matrix.

The application can be customised to some extent to fit your way of working. For instance you can set up a document to act as a default – so that TechWriter always loads it on starting up – by saving it in the !TechWrite directory and adding the run parameter `-u <Filename>` to the !Run file.

Other parameters you can use are `-d` to provide 3D icons in Risc OS 3

and `-r` to force documents of less than a specified size to be loaded into memory and then closed while you are working on it except during saving. In this way you can copy a file while you are working on it, which you couldn't if it were kept open.

Even the key shortcuts, which are defined in the application's MenuData file, can be altered if you're careful. For my own purposes I set F6 to force Display size whatever the context – see the Size submenu in Figure I.

The TechWriter manual, like the EasiWriter one on which it builds, has three chapters: A tutorial, a *cookbook* of examples and hints for

extending the basic ideas, and a reference section. The tutorial is well paced and takes you gently as far as you want to go.

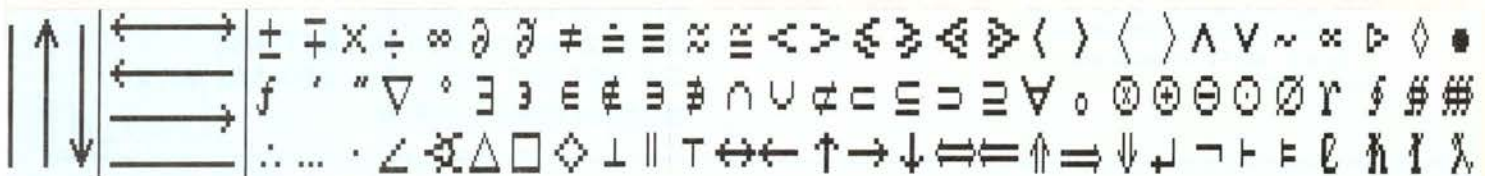
The obvious program for comparison is Computer Concepts' Equasor. The difference in approach is that where the only output from Equasor is a drawfile or similar which can then be incorporated into another package, TechWriter's native function is to produce mathematics as an integral part of its document structure. With the advent of its Draw-format saving option TechWriter should sweep the mathematical board.

Summing up

When I first heard that TechWriter was in preparation I was quite excited. Now I've seen it in action I still am and representatives of mathematical typesetting firms who have seen it have cast envious looks at the ease with which real maths can be achieved. They, poor souls, don't use Acorn machines. We who do should count ourselves fortunate.

Another neat touch is the ability to align successive equations

● TechWriter's greek palette, for choosy characters





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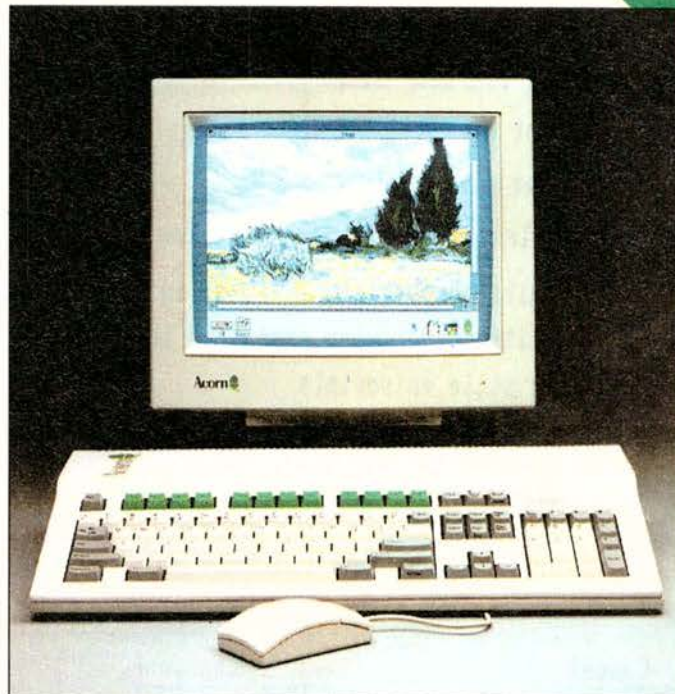
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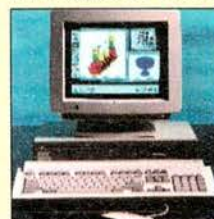
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Winter PD land

There's Christmas fare for all in PD. Teri Paul explores the possibilities

THE public domain is ideal at this time of year. OK giving someone a selection of free software is probably not the most endearing present in the world, but how about a subscription to one of the many PD libraries?

But what I really had in mind is that once you have spent all your pennies on Crimble presents, you need not despair as you can always splash out into the PD and treat yourself to some good quality software.

We covered quite a few entertaining bits and pieces last month, and some more have hit the streets too.

Drop Rock is a Repton-clone from Vince Hudd at Soft Rock Software. There is a PD and commercial version – costing £3.49 – and though the sprites are small, it is a pleasant way to while away a couple of hours.

Another small software house using the PD to promote a new

commercial game is Green Angel Design with **Psychedelic Rockers** a Pacman-clone featuring the rastafarian Rankin' Rodney.

However, both these games need to go some to approach the polish and addictiveness of some of the excellent PD games like **Tertis**.

This inspired me to look at some older games many of which were programmed using the Alpine Creator system. Why not have a go yourself?

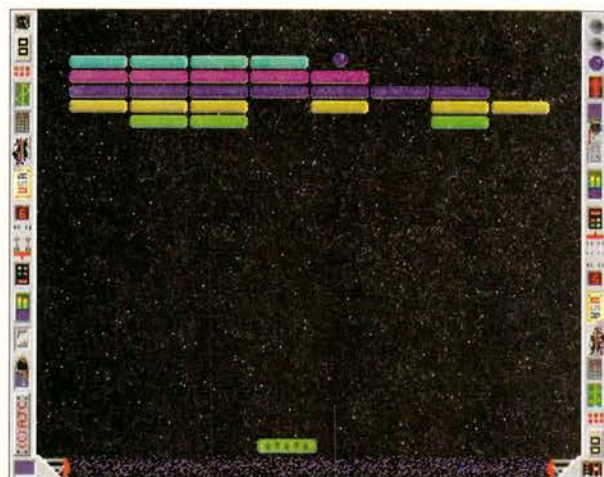
Five Star Marketing sent me a selection of their PD recently and I re-acquainted myself with Andrew Cawte's **SpaceBall** and a pelmanism game called **IconMatch**.

SpaceBall is another clone of a commercial blockbuster – **Breakout** and its cousins. Excellent graphics, nice gameplay in fact a classic implementation. No music but good sound effects.

IconMatch – or pairs – is entertaining as well as educational. It's a multi-tasking program where

you must match the icons in the least number of moves.

Digital Illusions sent me a new game from Tom Cooper – **Sylph** which is a quite an addictive shoot-'em-up with elements of Stryker's Run, and **Thruster** thrown in for



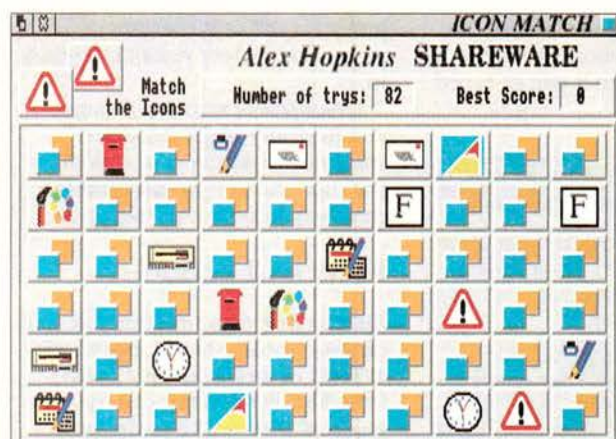
● A version of *Breakout* complete with stars

good measure. From the same stable comes **1914** – a flight simulator created using the Simis' Flight Sim Toolkit.

Learning the ropes

Belgium-based BASS have a very useful program called **Dissi**. Basically a disassembler, it is an excellent tool for taking other programs apart with to see how a certain programmer tackled a problem and learning from his solution.

However, **Dissi** is shareware rather than PD so you'll need to find the £10 registration fee if you like it. The benefits of registration and shown in the accompanying helpfile – such enhancements as a data file save option which allows you to strip long data parts of an ARM program automatically in



● I hope you're paying attention

8-bit help

Headfirst PD have a range of disks for Electron users.

The programs on offer include a database for use with the Slogger Master Rom Board where records can be stored, edited and searched as normal. You can have up to 20 fields per record with a maximum character length of 25.

There is also a selection of Mode 7 programs in their catalogue which let you con-

vert Mode 7 screens to Mode 2 and gives you a pseudo-Mode 7 Viewdata-type message display system. A complete Mode 7 emulator is also available but needs a Master Rom Board.

BBC PD have a new version of Steven Flintham's **Help Rom**.

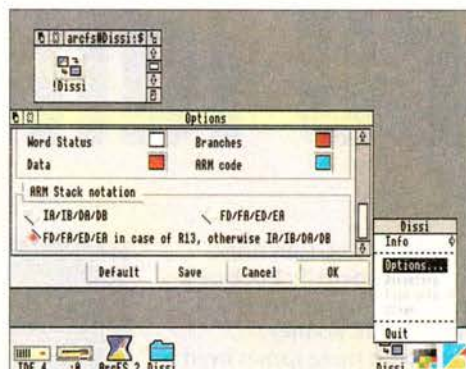
This program is designed to run in sideways ram and provides on-line help which can be used with your own programs using a

standard wordprocessor, such as View, WordWise or Mini Office II, to create the text file and save it in Ascii format.

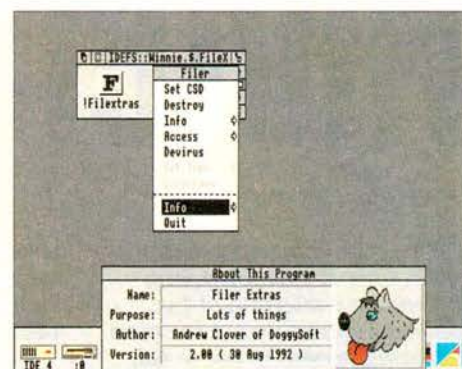
As it runs in sideways ram no main memory is consumed and the instructions are easy to follow and full of detail. Version 1.01M uses extra instructions available in the 65SC12 microprocessor family found on the Master, but apart from that V1.01 and 1.01M are the same.



● If it moves blast it, if not collect it



● BASS have produced a professional disassembler



● A novel approach to using file utilities

separated files. Dissi multi-tasks and offers an easy way to convert any machine code program whether utility, absolute, module file or raw code file, into its source code.

The output file is a Basic file and it is completely Basic ARM assembler compatible. The registered version supports other formats such as those for the Acorn or Winpass assemblers.

A manual and tutorial is included with the program and you are given a worked example to take you through each step. All in all, very impressive.

On the home front Doggysoft have produced **Filer Extras v2** which lets you to set filetypes, set the CSD, recursively access, destroy and send to edit to name a few.

Once it's running Alt-double-click on a program or directory and you'll get a menu providing lots of facilities, or you can use key short-cuts if you prefer.

Set CSD lets you access files more easily outside the desktop environment. Destroy deletes the object even if it is locked against deletion – be careful as all the objects are deleted recursively. Access works in the same way – recursively setting the access flags on the files and directories – useful when you have a quantity of locked files to access.

The Info utility opens a window showing various information about the file or directory. There are also two buttons: Clicking the grey K button enters the pathname of the object into the keyboard buffer, as if it had been typed so it will be typed

into any wordprocessor or DTP program currently running. Pressing the red F1 button to define function key one as the pathname – a definite time saver.

A virus killer of sorts has been added too: Devirus hunts out the Extend, Modular and Archie viruses which is limited but better than nothing.

There are a number of SetType programs around and here clicking on Auto will attempt to find out from the contents of the file, what the type should actually be. There are some other hidden programs too and the help file is essential reading.

The Alt-double-click idea is nice as it means that you don't have to drag files to another program, you just press the keys over the program/directory you're interested in.

One word of warning though – if you have any highlighted text windows on screen you could find the short-cut key presses finding their way into your purple prose.

Facts and fiction

Anyone interested in 19th and 20th century history should take a look at **A bit of welsh history...** also from BBC PD. It reminded me very much of History O level lessons. The program gives you facts and figures on the Truck system, protests and radicalism and other aspects of industrial, social and economic history of the area – most of which is applicable to other industrial areas of the time.

A must for everyone is Duncan Lilly's **Tonkin's Computer Dictionary**. The content is educated and very funny taking an irreverent look at computer jargon. One of my particular favourites is C: The language following A and B. The world still awaits D. By Z it may be acceptable for general use.

PD LIBRARIES

8-bit houses

8-bit Software, 1 Oakwood Drive, Heaton, Bolton BL1 5EE.
BBC PD, 18 Carlton Close, Blackrod, Bolton BL6 5DL.
Elk PD, 5 Edward Street, Clifton, Brighouse, Yorkshire HG6 1QR.
Frisky Clams, 37 Cassiobury Drive, Watford, Herts WD1 3AA.
GLM PD, 2 Pierrefondes Avenue, Farnborough, Hampshire GU14 8NF.
HeadFirst PD, 97 Chester Road, Southport PR9 7HH.
JUF PD, 49 Holliberry Close, Wingates Green, Redditch, Worcester B98 0QT.

Mad Rabbit PD, 174 Duke Street, Southport, Merseyside PR8 5EL.
MasterDisc, 2 Seaview, Hoylake L47 2DD.
Re-Run, 1 Northholme Close, Grays, Essex RM16 2NX.
ScreenTeach, 21 Highlands Road, Rochdale, Lancashire.
The Wizard - BBC, Ryburn, Thorpe Lane, Cawood, Selby, North Yorkshire YO8 0SQ.
Welsh Boys PD, 88 Queen Street, Barry, South Glamorgan CF6 8EE.
The Yorkshire Boys, 40 Spotswood Place, Gleadless, Sheffield S14 1LE.

32-bit houses

Abyss Software, 35 Grantley Crescent, Kingswinford, Valley Fields, West Mids DY6 9EH.
Alpine PD, PO Box 25, Craigavon, BT63 5UT.
Arcaynia, PO BOX 1927, Sutton Coldfield B74 3YZ.
ArchAngel, 9 Chancel Court, Chancel Lane, Pinhoe, Exeter EX4 8QE.
Arch PD, 109 Ferry Road, Hullbridge, Hockley, Essex SS5 6EL.
ARMistic, 136 Wellesley Road, Ilford, Essex IG1 4LJ.
Busy Bee Computers, PO Box 25, Ormskirk, Lancashire L39 3QR.
RE Clark PD Library, Westbourne House, 34 Bradley Street, Wootton-under-Edge GL12 7AR.
Cream PD, 38 Baunton, Cirencester, Gloucester GL7 7BB.
Datafile PD, 22 Duxford Drive, Aldergrove, County Antrim, Northern Ireland BT29 4BG.
DataStream, 34 Norbreck Close, Great Sankey, Warrington, Cheshire WA5 2SX.
Diamond PD, 86 Meadowbank, Moor Lane, Holywell, Clwyd CH8 7EF.
Different Ideas Music, 48 Merthyr Road, Dallington, Northants NN5 7BS.
Digital Illusions, 20 College Road, Wembley, Middlesex HA9 8RL.
Digital Phenomena, 104 Manners Road, Southsea, Hants PO4 0BG.
DigiTech PD, 20 Downing Crescent, Bottesford, Scunthorpe, South Humberside DN16 3LS.

Equinox PD, 27 Station Road, Earls Barton, Northampton NN6 0NT.
Five Star Marketing, 18 Woburn Close, Bushey, Herts WD2 3XA.
Genesis PD, 19 The Greenway, Hillfields, Bristol BS16 4HB.
HeadFirst PD, 97 Chester Road, Southport PR9 7HH.
I-APL, 11 Auburn Road, Redland, Bristol BS6 6LS.
Low Cost PD, 6 Furzeland House, Sheephouse Way, New Malden, Surrey KT3 5PH.
Mad Rabbit PD, 174 Duke Street, Southport, Merseyside PR8 5EL.
Naked PD, Fayence, Fulford Road, Fulford, Stoke-on-Trent ST11 9QT.
Ozone-Friendly PD, 180 Cumnor Hill, Oxford OX2 9PJ.
Power to the Programmers, 1st Floor, 23 Cooper Street, Nelson, Lancashire BB9 7XW.
Moonlight Graphs - Shareware, PO Box 3569, Cape Town 8000, South Africa.
Rise PD, Potteries House, Rannoch School, By Pittlochry, Perthshire PH17 2QQ.
RML PD, 24 Penryn Close, Norwich NR4 7LY.
Skyfall, PO Box 2220, Birmingham B43 5R2.
Spidersoft PD, 218 Saville Park Road, Halifax, West Yorkshire HX1 2XS.
Matthew White, The Pines, 7 Peasehome, Hesse, North Humberside HU13 0HY.

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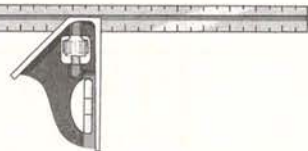
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Canon BJ-330 £399
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Citizen Swift ASF £79
HP DeskJet 500 / 500Col £329 / £479
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A540/A5000 Tech Guide (ea) £65.00
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Acorn RISCOS2 PRM's £79.00
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DEC 92

NEW ARM3 upgrade with floating point accelerator option

The first ARM3 upgrade to allow a floating point accelerator chip to be connected directly to the ARM3's 32-bit coprocessor bus. The ARM3 itself increases the speed of your computer by a factor of at least 3, and sometimes even more. In addition the floating point chip speeds up maths operations previously emulated by software.

Other floating point units have the disadvantage of occupying a slot in the backplane. They are also either incompatible with ARM3 boards, or relatively slow due to the 16-bit backplane interface. This upgrade does not suffer from any of these disadvantages.

- ★ ARM3 alone gives typical 3 to 4 times speed increase
- ★ Floating point accelerator chip option for even faster maths functions
- ★ High quality 4-layer board
- ★ Fits A305, A310, A440, 400/1 series and the A3000
- ★ Fully compatible with other upgrades (memory, hard discs, RISC OS 3 etc)

Installation is straightforward for all machines except the A3000, but a fitting service is available in all cases. Please note also that the A300 series and old A440 require the MEMC1a upgrade. Please write or phone for full details.

Our usual money-back guarantee applies to this product.

ARM3 introductory price - £175

MEMC1a - £36 Floating point unit - £ TBA

A3000 systems & memory

A3000 - £599 A3000 Learning curve - £642
Free 2Mb RAM upgrade included in the price.

2Mb RAM board (upgradable to 4Mb) - £45
4Mb RAM - £110

Bare board (without RAM chips) - £25.50
An easy to fit and reliable RAM upgrade. 8-chip design for minimal power consumption.

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ARM3+RISC OS 3.10 combined package now only £199

RISC OS 3.10

Acorn's new operating system for their range of RISC computers. The old version of RISC OS (2.00) is just 512K long, whereas OS 3.10 contains 2Mb of code.

Many applications which were previously supplied on disc are now contained in the OS ROMs. This includes improved versions of Draw, Paint and Edit. Because they are available on ROM they are always instantly accessible, and also occupy less RAM space.

Other features include extra "background" operations. For example, discs can now be formatted or files copied while the machine is used for other purposes.

RISC OS 3.10 may be used on the A305, A310, A440, 400/1 series, A3000, A540 etc.

Orders for RISC OS 3.10 are now being taken on a first-come first-served basis. Phone 0752 847286 for further details.

RISC OS 3.10 £41.70

A305, A310 and A440 owners please note.

Although the ROM sockets inside your machine are large enough to accommodate the new ROMs, simply plugging in RISC OS 3.10 *will not work*. This problem is overcome by installing the RISC OS Carrier Board first. The RCB may be used with any version of RISC OS. This carrier board is compatible with memory boards, ARM3 upgrades and does not in any way obstruct expansion cards ("podules").

RISC OS Carrier Board £20

A5000 systems & memory

A5000 with RISC OS 3, 40Mb hard disc, multisync monitor and ARM3. - £1399.

A5000 learning curve. - £1445.

Free 4Mb RAM upgrade included in the price.

2Mb memory board (4Mb total) - £85

A compact board measuring just 104mm by 49mm, this design fits vertically in your machine. No soldering required. Unlike larger boards, there is no need to remove the disc drive. Four-layer design as specified by Acorn. A bare board (ie without the RAM chips fitted) is also available.

Hard disc upgrades

A range of fast (17ms) SCSI hard discs with a two year warranty, in sizes from 52Mb upwards. Supplied with all metalwork and cables. 400/1 machines merely require the drive and SCSI card. 300 series require a backplane.

40Mb - £POA 105Mb - £260
170Mb - £320 210Mb - £525
Oak 16 bit SCSI card - £100

Various

Aleph One 386 1Mb PC Card - £390 (4Mb £475)
Aleph One 486 1Mb PC Card - £490 (4Mb £575)
Impression 2 - £130

Free price list available upon request.
Prices exclude VAT.

A310 & A305 upgrade column

Memory expansion

Extra memory is without doubt the most worthwhile addition to any A300 series machine. Some programs won't even run with only 1Mb, and 2Mb is a bare minimum. Certain applications, desktop publishing for example, benefit from a 4Mb system.

2Mb - £89

4Mb - £145

Compatibility. The memory is detected and used by the machine automatically, so there are no special commands needed. Works with both RISC OS 2 and 3.10.

The use of only eight RAM chips ensures low power consumption. Compatible with ARM3 upgrades, backplanes, hard discs etc. This upgrade is supplied on just one, compact board measuring only 195mm by 40mm. Four-layer circuitry reduces electrical noise for trouble-free operation. The 2Mb upgrade may be upgraded to 4Mb later by the user, without any soldering. A copy of the fitting instructions is available free of charge.

A complete fitting service is available for our RAM boards covering courier collection, installation and testing, MEMC1a, return delivery and guarantee. This is normally a three-day service (eg, collected Monday, returned Wednesday). We have been upgrading 300 series computers for over three years, and during that time a reliability record second-to-none has been established.

Is there any other 300 series RAM upgrade which has been available for as long as this one, and which has the same reputation for quality and reliability? No.

Still not sure? Compare it with the competition before making up your mind. Use our 14-day money-back guarantee to check it out for yourself.

RISC OS Carrier Board £20

This is an easy to install adaptor board for the larger RISC OS 3 ROMs. A set of links on the board allows it to be used with RISC OS 2 and easily adapted for RISC OS 3 later. Suitable for use with the A305, A310 and A440. The adaptor has been fully tested with RISC OS version 2.00 and version 3.10. It is fully compatible with other hardware upgrades such as the RAM board described above, ARM3's, backplanes, VIDC enhancers and expansion cards.

4-slot backplane with fan £57

Combination deals

4Mb with MEMC1a, self-fit £181

Collection of your computer, installation of 4Mb of RAM, MEMC1a, and RISC OS Carrier Board, testing, full guarantee, and return delivery £199

DTP special

Your A300 upgraded with 4 Meg of RAM, MEMC1a, ARM3, RISC OS 3 and Impression 2 software £485

We can supply a range of hard drives with the above system.



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Upgrade from 2Mb to 4Mb - £65

Upgrade from 1Mb to 4Mb - £99

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A4000-2Mb HD80	–	£949	£999
A4000-Home Office	–	£999	£1049
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A5000-L/C 2Mb HD80	–	–	£1445
A5000-4Mb HD120	–	–	£1599
A5000-2Mb ES	–	–	£1299
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Pocket Book	£212	–	–
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Acorn Inkjet Printer add £199

For more Printers, see pages 5 & 6

Archi A4 Notebooks

A4 Notebook with 2Mb RAM	£1399
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A5000 Hard Disc Drives

A5000 – 100Mb 18mS Hard Disc Upgrade	£269
A5000 – 210Mb 18mS Hard Disc Upgrade	£395

Archimedes Hard Disc

Watford's ST506 Hard disc drives for A310 & A410 series fit internally into the space provided. P.S. A310 upgrades require a backplane and a fan.

• 3HDP – Hard Disc Podule only	£99
• 3HD40 – 40Meg H' Disc + Podule for 310	£285
• 3HD50 – 53Meg H' Disc + Podule for 310	£359
• 4HD20 – 20Meg Hard Disc for 410	£69
• 4HD40 – 40Meg Hard Disc for 410	£195
• 4HD50 – 53Meg Hard Disc for 410	£260
• A3000 20Meg Hard Disc + Podule	£279
• A3000 40Meg Hard Disc + Podule	£379

Acorn A3010 Family Pack

Supplied with 3.5" Floppy Disc Drive and a mouse, upgraded to 2Mb RAM, Colour Monitor and lead, TV modulator, 30Mb fast IDE Hard Disc Drive, 'Compression' utility to increase the Hard Drive capacity to typically 60Mb, the highly acclaimed Computer Concept's Impression Junior DTP package, EasiWord wordprocessor, Quest for Gold game, applications suite of software packages and comprehensive audio training tape.

RRP: £1095

Sale Offer Price: £765

Above Package plus Acorn's Learning Curve £879

Special Education discounts available on micros, RAM upgrades, ARM 3 Turbo Card, etc. Please write in or telephone:

0582 48 77 77

Leasing facility now available. Please telephone or write in for details.

More Archimedes Products See Pages 3, 4, 5, 6, 7, 8

Archimedes RAM Upgrade

All our memory upgrades are simple to fit. No soldering required. Fitting instructions supplied.

• R300-4 Layer RAM upgrade board (Bare).	£25
• R302-A3000 – to 2MB RAM Upgrade	£29
• R303-A3000 – to 2MB RAM Upgrade (expandable to 4MB)	£49
• R304-A3000 – to 4MB RAM Upgrade	£99
• R305-A3010 – to 2MB RAM Upgrade	£29
• R306-A3020 – to 2MB RAM Upgrade	£45
• R311-A305 – to 1MB RAM Upgrade	£30
• R312-A305/310 – to 2MB RAM Upgrade	£99
• R314-A305/310 – to 4MB RAM Upgrade	£199
• R412-A410/1 – to 2MB RAM Upgrade	£25
• R413-A420/1 – to 4MB RAM Upgrade	£50
• R414-A410/1 – to 4MB RAM Upgrade	£75
• R810-A410/1 – to 8MB RAM Upgrade	£579
• R820-A420/1 – to 8MB RAM Upgrade	£549
• R840-A440/1 – to 8MB RAM Upgrade	£479
• R814-R140 – to 8MB RAM Upgrade	£499
• A5000 – to 2MB additional RAM Upgrade	£82

Desk Top Publishers

Acorn's Archi DTP Package	£69
● Equasor £39; ● Expression-PS	£19
Impression 2 DTP Pack	£123
Impression Junior	£69
Impression Business Supplement	£39
Impression II Borders Disc	£19
Ovation DTP	£89

Archi Wordprocessors

Pendown Archi	£48	PD Spellchecker	£40
Pendown Plus	£79	Graphic Writer	£19
Pendown Outline		Easiwriter	£115
Fonts	£18	EasiWord	£58
1st Word Plus – 2	£63		

Databases

Flexifile	£79	Multistore v2.01	£176
Knowledge Organiser	£42	Pinpoint	£65
Magpie	£40	Pinpoint Junior	£23

Spreadsheets

Eureka	£99	Schema	£89
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Business Graphics

GammaPlot	£39	Sigmaplot	£39
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Integrated Packages

• Pipedream 3	£116	• Pipedream 4	£146
• Desktop Office – Database, Graphs & Charts, Wordprocessor Spreadsheet, Communications			£98
• Desktop Folio – Wordprocessor, Desktop & Interactive Publishing. Ideal for school			£75

Computer Concept's professional Art package ArtWorks £139



**CREDIT CARD 24 HOUR
Ansaphone Hot Lines
(0923) 250234 or 233383**

Hi-Speed, Low Cost Archi Hard Disc Drive

Watford's advanced interface allows IDE drives to work on any Archimedes machine, speeds in excess of SCSI devices can be obtained at a fraction of the cost of a SCSI drive.

Up to four drives are supported by the IDE filing system IDEFS, up to two drives can be attached to each expansion card, up to four cards can be installed in a machine. An optional 20Mb or 40Mb hard disc can be supplied on the podule expansion card itself, with its fast transfer rate and power saving modes the drive is ideal for storing commonly used software such as the !Font application.

A powerful security feature has been provided with the two unique commands *IDELOCK and *IDEUNLOCK, ideal for educational establishments where hacking or tempering may be prevalent that may lead to loss of data. Once locked, the configuration can not be changed until a secret password is used. The !IDEForm Write Protect option is particularly useful in conjunction with *IDELOCK as it will prevent any unauthorised deletion of data.

By an innovative use of on-board memory, the card will remember its configuration, even if moved to another slot or even a different machine, this also includes the unique security features.

Hardware

- Single width EuroCard
- Supports proposed ANSI ATA (IDE) specification
- Fast 16 bit MEMC interface interrupt driven to support background disc operations
- 5 Mbytes per second peak transfer rate
- Optional on-card 20Mb or 40Mb hard disc
- Up to two drives (master and slave) per card
- Multiple cards per machine (up to four)

Software

- Conforms fully to the Acorn IDE Specification
- All software supplied in ROM
- Filing system 'IDEFS'
- Desktop filer with drive ready detection and disc name under icon
- !IDEForm, WIMP based configuration and formatting software
- Drives can be individually write protected
- Up to four drives over multiple cards
- Power saving standby modes supported with configurable timeout
- Drives can be used without translation in native mode for minimum overhead
- !IDEFDisk, creates PC emulator hard discs

Prices

Part No.	Capacity	Access Speed	Price
ADA 0520	44Mb	28mS	£195
ADA 0530	100Mb	16mS	£295
ADA 0570	200Mb	15mS	£449
ADA 0580	330Mb	15mS	£799

All the above 3.5" hard drives are supplied complete with Controller Card, cable & Software on ROM. (Internal fitting). For use with A300/A400/A500 series machines.

For A3000 users an additional external Case and PSU will be required.

AAA 0300 External Case & PSU for A3000 £85

Internal Hard Disc Drives for A3000

State of the art, 4 layer internal IDE Hard Cards for the A3000. Software supplied in, On-board ROM.

ADA 0770	30Mb	19mS	£185
ADA 0720	40Mb	19mS	£279
ADA 0750	60Mb	18mS	£329
ADA 0730	80Mb	18mS	£399

Supplied ready assembled. No soldering required. Simply plug into the allotted space.

Archi IDE Hard Cards

"Simply plug
and play"



Watford's easy to instal, low cost, high performance, revolutionary IDE Hard Cards for the A300 & A400 series Archimedes.

ADA 0800	30Mb	19mS	£195
ADA 0660	40Mb	28mS	£289
ADA 0810	60Mb	18mS	£339
ADA 0670	80Mb	18mS	£409

(Can be used as a Removable Hard Drive)

NEW

Archimedes A300/A400 SCSI Hard Disc Offer (while stocks last)

100MB Hard Disc Upgrade
complete with Controller card,
Cables, Formatter and Manuals

RRP: £799

Offer Price: £289

Syquest Removable Disc Units

These Hard Drive units are supplied complete with a cartridge 42Mb removable, cables and a high flow fan for cooling.

• Syquest Drive Unit pack	£379
• As above + SCSI Card	£415
• Spare 42Mb Disc	£55

Archi to BBC Serial Link Mk 2

Using this simple data link, it is possible to solve all your BBC to Archimedes data transfer problems. The kit is supplied with a disk, and the necessary cable to connect the two computers. New RISC OS Version also available (please specify)

• For A3000	£15	• For A5000	£16
For A3000 Serial Upgrade (£19) required			

A3000 I/O Card (User, Analogue & IIC)

This NEW versatile I/O Card from Watford, fits inside the A3000 and includes an Analog to Digital Converter, a User Port, and an InterIC (IIC) connector.

The card allows many of the peripherals developed for the BBC to be used with the Archimedes A3000. The ADC and User Port have the same pin out and connectors as the BBC computers.

Extensive RISC OS software is supplied to provide BBC OSBYTE calls for support of the ADC and User Ports, including the BASIC keyword ADVL. The software provides extended RISC OS support for separate interrupts from both the ADC and User Ports, permitting easy interrupt driven operation.

The card is provided with all the software in ROM and is automatically loaded when the machine is turned on.

Peripherals connected to the ports can obtain up to 500mA of power at +5V. A fuse is fitted to the card to protect the A3000 from damage arising from accidental short circuit of the power output.

Features

- An 8 bit User Port with a standard 20 way IDC connector, compatible with the User Port on the BBC computers and the Archimedes I/O Podule.
- A 10 bit Analog to Digital Converter with a standard 15 way D type connector, compatible with the ADC on the BBC range of computers and the Archimedes I/O podule.
- An InterIC (IIC) Port with a 5 pin DIN socket to connect the A3000 to external IIC devices.

£42

Minerva's Archimedes Software

EasyWord	£18	Time Tabler	£549
Home Accounts	£35	System Delta	£59
System Delta Program Reference Manual			£29

Stand alone Business Accounts Packages

Sales; Purchase; Order Processing and Invoicing;
Nominal; Stock management
£79 per module
or Complete Business Package £325

ARM 3 Turbo Card MkII

Simply The Best



Here it is at last - the all new Mark 2 version of Watford's highly acclaimed ARM 3 processor board for the Archimedes and now also the A3000 series computers. Using the latest surface mount technology on a high quality four layer circuit board we have reduced the overall size to a mere 53mm x 45mm, and the cost to only £169. Mk II upgrade will increase the speed of your micro by a factor of 3 to 6.

Any competent A300 or A400/1 series micro owner can fit the upgrade himself, as we provide full fitting instructions and a special ARM chip extraction tool. However for A3000 and those not wishing to perform the upgrade themselves, we will collect, upgrade and return your micro by courier service, at an additional cost of £18.

(A300 and old A440 series owners please note - you will need to upgrade to MEMC1A for ARM3 to work.)

RRP £249

Christmas Offer £145

Acorn have satisfactorily evaluated Watford's ARM 3 upgrade and the A3000 upgrades are fitted by Acorn approved surface mount technology centre, therefore its fitment will not invalidate Acorn's warranty on the micro.

BBC MASTER

MASTER 128K Micro incl. Acorn's View, Viewsheets, ADFS, BASIC Editor & TERMINAL plus FREE OFFER (see below) **£375**

FREE with every BBC Master purchased from us during November

A 5.25" Double Sided, 40/80 track switchable 400K Disc Drive complete with cables and a Utilities disc incl. 2 games, plus

Gemini's OFFICE MATE & OFFICE MASTER

Add-Ons & Accessories

Econet Module for the Master	£42
Twin ROM Cartridge for Master	£9
Quad ROM Cartridge for Master	£14
Master Reference Manual I	(No VAT) £14
Master Reference Manual II	(No VAT) £14
Master Advance Ref Manual	(No VAT) £14
64K Upgrade Kit for B+	£32
Acorn 1772 DFS Kit complete	£49
ECONET Upgrade Kit for BBC B	£42
ALL ECONET UPGRADES Available	
ARIES' IEEE Interface for BBC B & Master	£238
Morley Teletext Adaptor with ATS Rom	£99
Ecolink	£270

Continued → → → → → → → → →

Watford Electronics Aries PC Card

Access the world of MS-DOS from your RISC OS based computer

Watford Electronics brings you a full specification IBM compatible PC card for the Archimedes. You no longer require the Archimedes PC Emulator, all PC software is run locally on the expansion card with custom written software to interface the PC card into the RISC OS environment. The expansion card is a full hardware implementation, with the ability to be turned into an ISA Bus, fully fledged 386 PC just by the addition of a power supply, keyboard, storage device and a monitor!

Processor

386SXL 33MHz low power processor. Socket for optional 387SX 33MHz numeric co-processor.

On Board Peripherals

- Uses 82C107 single chip solution.
- 128 bytes of battery backed CMOS RAM.
- AT compatible Keyboard Controller.
- Uses standard Archimedes keyboard and mouse. Full standard ISA 16 bit expansion bus available.
- Optional expander allows one or two half size PC cards to be installed in the adjacent Archimedes expansion slots.

Memory

- Uses 82C311 memory controller 2Mb zero wait state DRAM as standard, upgradable to 4Mb DRAM just by adding 4 more chips.
- Bank interleaving and page mode memory operation for maximum performance.
- On-board BIOS ROM.

Display Controller

- Hardware support for VGA with 512Kb of video memory.
- On board Quadtel VGA BIOS ROM.
- Multitasking screen display on RISC OS.
- Desktop can be achieved in software.
- Separate VGA monitor can be connected for simultaneous RISC OS and PC display or your Archimedes VGA compatible monitor can be used with optional video switch.
- Much faster and improved video speed compared to PC Emulator.

Hard & Floppy Disc

- Full background disk access, the Archimedes is not adversely affected.
- Any existing Acorn PC Emulator hard disk partition can be used, with the ability to create new PC hard disk partitions on any RISC OS hard disk.
- Optional IDE hard disk and floppy drive option for direct connection of a dedicated hard disk and floppy to PC card.
- Access to the Archimedes floppy disc drive for reading and writing of PC disc formats from PC.

Bundled Software

- MS DOS 5.0, Lotus Works and PC Organiser

Sound

- Uses the Archimedes internal speaker by connecting to the Auxiliary sound connector.

Enhancements

Optional expansion card will be available either hardware parallel and serial ports or the ability to connect an external AT style keyboard and mouse.

The PC card can also be plugged into a stand alone backplane to form the heart of a fully expandable, industry compatible 386SX computer, with no reliance upon the Archimedes.

Specifications may be subject to change. E&OE.

Call, fax or write now for more details!

Scan256 – The only sensible scanner purchase

Scan256 – the innovative 256 grey-level hand scanner for the Archimedes range of micro computers. It offers up to 256 grey levels at a maximum of 400 dpi, and comes complete with the most advanced and sophisticated 256 grey scale scanner software currently available for the Archimedes.

- Multiple copies of the image in memory at once.
- Allows multiple consecutive operations without having to save the original image to disk.
- Instant re-draw of all 4 image buffers.
- No re-calculations needed unlike other packages that use on the fly screen-dithering.
- Highly advanced dithering and image size reduction.
- Available via industry standard Change FSI package for maximum image quality. An invaluable aid to reduce the size of the image whilst maintaining maximum image quality.
- Advanced in-built image processing options.
- Convolution digital filtering fully implemented with over 100 filters covering edge detection, image enhancement and image smoothing. Enables high quality images to be obtained from poor quality scans.
- A unique L.E.D. indicator on the scanner.
- Shows you when the scanner is being moved at close to the maximum scanning speed, not just when it is too late and a scan line has been missed by moving the scanner too fast.
- Fully adjustable scale and size of image preview when scanning

- Hand held scanner image preview window can even be behind other windows and preview is shown in real-time with maximum number of grey-scales available.
- Support for The Serial Port Graphics Enhancer.
- Forthcoming support for the State Machine G8 Graphics Card.
- Allows up to 256 simultaneous grey scales on screen at once.
- True brightness, contrast and gamma correction.
- All can be specified by a value to exactly match monitor/printer. No guessing with shapes of curves and correction is mathematically correct.
- RISC OS 3 features.
- Include rotation and shearing. Scans normally are scanned at a slant rather than being rotated, shearing enables the scan to be corrected better than rotation.
- Fast RISC OS printing.
- Multiple options such as scale to page, centre, sideways selected area, and any scale.
- Scanner scans at an amazing 3ms per line.
- A post card at 400dpi takes only 7.3 seconds to scan, creating over 3Mb of data.
- Selectable scanning modes.

- 256 grey-scale, 256 grey-scale half width, 16 grey-scale and monochrome scanning modes. Half width mode enables longer 256 grey-scale scans to be achieved.
- Save image foreign formats.
- Save as industry standard TIFF for exporting to other systems, AIM for further processing, or RISC OS Sprite format.
- Single width, high quality podule using surface mount technology

The only sensible scanning and image processing solution for the Acorn Archimedes. Just compare the features, there can only be one choice...

**Scan256 Scanner,
Interface Card,
Software and Manual
Only £185**

Please specify Archimedes type.
Not compatible with A3010, A3020, A4000

Call now for details about our new Scan256 Flatbed Professional Scanner

BBC Education Software

A vous la France	French programs for beginners	£29
Au restaurant/Accident de route	French games for 12 years +	£26
Boulougne and oh les	French program for beginners	£26
Computer control	Program simulating computer control	£26
Computers at work	Primary education program	£17
Espana Viva	Spanish educational programs	£20
Folks Tales	Listening and reading for ages 7+	£22
Geordie Racer	Look and read for ages 7+	£22
Hall of Mirrors	Practice word & number skills	£22
Help your child learn basic mapwork 2		£18
Inside Science	Four common science subjects	£22
Letters and pictures	Educational programs for 6-8 years	£15
Make a wildlife garden	Explore wildlife/weather/garden growth	£22
Maths with a story 1	Primary level maths programs	£20
Maths with a story 2	4 further maths programs	£20
Note invaders	Learn sheet music for 7-Adults	£15
Numbers & Pictures	Early number learning (4-6 years)	£15
Picture craft	Geometrical design & Colouring	£17
Puncman 1 & 2	Learning Punctuation (7-13 years)	£15
Puncman 3 & 4	Learning Punctuation (8-14 years)	£15
Puncman 5, 6 & 7	Learning Punctuation (8-15 years)	£15
Ramayana Tales	Simple Desktop Publisher using pictures & characters from the Ramayana	£22
Skyhunter	Look and read educational adventure	£22
Technology and design	Problem solving programs	£22
Through the dragons eye	Adventure game and Map reading	£22
Fun School 3 (Under 5)	Varied range of Education subjects	£17
Fun School 3 (5-7)	Varied range of Education subjects	£17
Fun School 3 (Over 7)	Varied range of Education subjects	£17

Archi Educational Software

• Animated Alphabet (3-6 yrs)	£21	• Glimpse Clip Art Utility (7-16 yrs)	£8
• Arcventure (8-12 yrs)	£29	• Highlighter (6-16 yrs)	£42
• Bookbinder	£43	• Jigsaw	£28
• Bumper Disc	£14	• Mapventure (9-13 yrs)	£24
• Bumper Disc 2	£14	• Microbugs	£24
• Craftshop 1	£26	• Money Matters	£16
• Craftshop 2	£26	• Nature Park Adventure (7-9 yrs)	£27
• Converta-Key	£16	• Numerator	£60
• Data Word	£16	• Picture Book	£16
• Desktop Stories	£35	• Recall (6-13 yrs)	£39
• DigiSim	£35	• Sellardore Tales	£24
• Dream Time (5-7 yrs)	£23	• Snippet	£26
• Farm (5-7 yrs)	£19	• Space Mission Mada (9-13 yrs)	—
• Fleet Street Phantom (9-13 yrs)	£25	• Sting of the Dump (9-13 yrs)	£22
• Fun School 3 Red (up to 6 years)	£17	• Target Maths	£16
• Fun School 3 Green (6-8 years)	£17	• Viewpoints (9-12 yrs)	£33
• Fun School 3 Blue (8 years +)	£17	• Wizard's Revenge (7-10 yrs)	£17
• Gate Array Teaching System	£68	• Worst Witch (7-10 yrs)	£25

Archimedes Software

GRAPHICS			
3D Construction Kit	£39	Pipe Mania	£17
Arc Light	£46	Power Band	£14
ARClit	£19	Puncman 1 & 2	£16
ARClitulate	£19	Puncman 3 & 4	£16
Art Works	£139	Pysanki	£14
Atelier	£65	Quazer	£10
Artisan II	£45	Real McCoy	£22
Artisan Gallery	£16	Real McCoy 2	£23
Autosketch II	£65	Real McCoy 3	£22
CADet (CAD)	£140	Redshift	£14
Craftshop 1 & 2	£28	Return to Doom	£16
Euclid 2	£50	Repton 3	£14
Graph Box	£59	Saloon Cars Deluxe	£27
Graphbox Professional	£107	Spitfire Fury	£22
HotLink Presenter	£40	Splice	£25
Illusionist	£69	Sporting Triangles	£24
Kermit	£46	Superior Golf	£14
Mogul	£17	Superpool + Break 147	£22
Poster	£79	Swiv	£19
Pro Artisan	£70	Talisman	£12
Prime Art	£69	Timewatch	£24
Render Bender 2	£79	Trivial Pursuit	£22
Revelation 2	£80	Twin World	£15
Snippet	£21	U.I.M.	£23
Titler	£119	White Magic 2	£15
Tween	£29	Wimp Game	£13
		Worldscape	£16

GAMES		Miscellaneous	
Air Supremacy	£17	Ancestry	£59
Apocalypse	£14	Arccomm 2	£38
Arcade Soccer	£14	Arcterm 7	£64
Boogie Buggy	£14	Armadeus Sound	£60
Break 147 + Supa Pool	£19	Avante Garde Fonts	£23
Bughunter in Space	£19	BBC DFS Reader	£6
Cataclysm	£19	Broadcaster Loader	£65
Chess 3D	£16	Compression (CC)	£38
Chocks Away	£32	Equasor	£38
Compendium	£14	FlexiFile	£97
Chocks Away Extra	£15	Genesis Plus	£68
Conqueror	£18	Genesis 2	£99
Corruption	£38	Investigator 2	£22
Cyber Chess	£33	JX Archi Colour Printer	
Elite	£19	Driver for Citizen & Star Printers	£15
Enter the Realm	£20	Maggie 2	£42
E-Type Compendium	£13	Notate	£42
E-Type Designer	£13	Numerator	£66
Family Favourites	£19	Pin Point	£65
Grievous Bodily Arm	£13	Presenter 2	£29
Holed Out Designer	£20	Presenter Story	£145
Holed Out Golf Comp	£14	Prophet	£132
Hostages	£26	Prophet Demo Disc	£10
Inter Dictor 2	£15	Rainforest	£17
Iron Lord	£27	Revelation 2	£95
Jigsaw	£20	Rhapsody in Blue 2	£45
Lemmings	£17	Score Draw	£46
Lost Temple	£16	Show Page	£127
Mad Prof Mariarti	£14	Speech!	£15
Masterbreak	£15	The Victorian	£17
Man at Arms	£19	Time Tabler	£549
MahJong Patience	£24	Toolkit (Clares)	£35
Manchester United II	£21	Touchtype	£40
Mig 29	£21	Tracker	£39
Nebullus	£20	Turbo Driver BJ10E	£42
Nevryon	£14	Vox Box	£46
Nevryon II	£14	WorldScape	£17
Olympics	£18		
Pandoras Box			

LANGUAGES (Archimedes)

ISO-PASCAL; FORTRAN 77	£77 each
Assembler; LISP; Prolog X	£149 each
Desktop C	£199
Macro Assembler	£40
Robo Logo	£69
BASIC Compiler	£77
Logotron Logo	£45
Risc Basic	£120
Risc FORTH	£110
Cambridge Pascal	£95

Archimedes External Disc Drive Interface

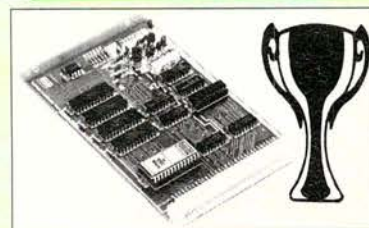
With this interface it is possible to connect almost any 5.25"/3.5" disc drive with its own power supply to the Archimedes. Up to 4 disc drives can be connected. Fully Buffered Board. NO SOLDERING is involved. Supplied complete with necessary lead.

Price £21

Back Plate Extension

• A300/400	£15;	• A3000	£14
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Archi Real-Time Digitiser



Now supplied with NEW RISC OS Version Software

Watfords' Archimedes Video Digitiser is the most sophisticated digitiser ever designed for a micro. It provides a fast and flexible means of capturing images from a video camera or recorder for display and manipulation on the Archimedes range of Micros. Off-air television signals may also be digitised via a video recorder or TV tuner. Please write for further details.

Price £119

A Set of Colour Filters for colour image grabbing using a video camera **£16**

Archi Graphic Tablet



The Archi Graphic Tablet offers performance and accuracy comparable to other tablets priced at well over £400, and has the useful addition of a liftable cover, which can hold tracing material or menu templates securely. The package is supplied complete with sophisticated Archi software. (Now, fully LinCAD compatible. Recommended by Linear Graphic for use in Education).

(FREE this month, PC Mouse Drivers & Art package)

Special Price £199

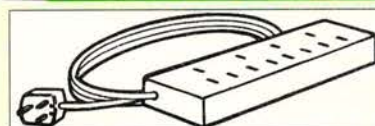
(Price includes Tablet, Leads, Software & Puck)
Stylus Optional Extra **£20**
Archi Graphic Tablet Junior. Working
area 9" x 6". Price includes Stylus **£125**

Surge Protector Plug

Fitted in place of your normal mains plug, this device protects your equipment (and data from corruption), against mains high voltage transient spikes/surges caused by lightning or thermostats switching.

Protection for only **£8.50**

4 Way Mains Distribution Socket



4 way top quality mains trailing sockets. Supplied wired up with mains plug ready for use. Can be screwed to floor or wall if required. Very useful for tidying up all the mains leads from your peripherals.

£9.50

Aries Spike Cleaner Unit

A 4 way mains distribution unit as above with a built-in Surge Arrester, providing protection for your complete Computer/Hi-Fi System

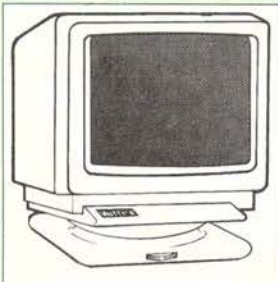
£16

8 Way DIP Switch

Increase the speed of your Disc Drives by soldering this switch to your BBC B or B+ keyboard

Only **£1.00**

Continued → → → → → → → →



FREE
Connecting
lead with
every monitor
purchased
from us.
Please specify
type required.

Microvitec Monitors

- 1431 - Standard Resolution Monitor £169
 - 1451 - Medium Resolution Monitor £209
 - Cub3000 Medium Res for A3000 £189
 - Dust Cover for Microvitecs £5.50
 - Touchtec 501 Touch Screen £239
- Now 3 years Parts & Labour warranty on all Microvitec Monitors

Multiscan Colour

- Eizo 9060S £389
- Eizo F550i £725
- Eizo T560iT £1095
- Eizo T660i-T 20" £1119
- NEC 3FG £345
- NEC 4FG £442
- NEC 5FG £827
- NEC 6FG £1485
- Taxan 770LR £335
- Taxan 787 £210
- Taxan 787LR £230
- Taxan 795 £394
- Taxan 875 £670
- Taxan 875+ £705
- VDC Enhancer £25

Aries AlphaScan Monitor

Pound for Pound, the AlphaScan VGA Multiscan monitor provides the maximum performance and greatest flexibility of any 14" colour monitor for the Archimedes micro.

Its multiscan circuitry provides automatic adjustment for frequencies between 30 and 60KHz horizontal, and 50 and 90Hz vertical. Its 0.28mm dot pitch high resolution tube provides super sharp text graphics, while a high speed (70/72Hz) refresh rate provides a flicker-free display easing the eye strain. The Multivideo VDC Adaptor supplied with the monitor allows high resolution operation in all screen modes.

- Aries Alphascan 17" Plus £325
- Aries Alphascan 17" Plus £495

Philips Monitors

- BM7502 12" Hi-res Green Monitor £67
- CM8833 14" Med. Res Colour Monitor £172
- Dust Cover for Philips Monitors £6
- Spare Monitor Leads (various) £7

STAR BUY

Philips CM8833 Colour Monitor

This attractively finished, etched screen medium res monitor is supplied complete with built-in speaker, volume control and video input. All controls are located on the front panel for ease of use. Ideal for BBC, Archimedes and Amiga.

Only £159

Roland Plotters

- DXY1100 £488
- DXY1200 £620
- DXY1300 £825
- DXY2500 £2345
- Sketchmate A3 £499
- Sketchmate A4 £308
- Roland plotter Pens, Fibre tip £7.50

Integrex Ink Jet Printers

- Colour Jet 132 Printer £425
- Integrex Betajet £185
- Integrex Colourjet Series 2 £POA
- Paper Roll £6.50
- BBC Screen Dump Software £10
- Colour Cartridge £21
- Black Cartridge £12.40
- 100 A4 OHP transparencies £55
- 8K Serial Interface Optional £123
- Colour Jet 2000 £529
- Betajet Ink Jet Printer £185
- Betajet Cut Sheet Feeder £43

VDC Enhancer

This unique VDC add-on board for the Archimedes, caters for all types of Multiscan and VGA monitor and mode requirements.

There are 2 versions to suit all requirements. The multimode software supplied, provides all the new modes for the selected monitor type, including the now standard Computer Concepts modes. With VGA monitor, you are no longer restricted to a few modes. A Desk Top application supplied on disc, allows new modes to be designed and existing modes to be modified for particular monitors.

Super VGA VDC Card: Its unique design allows the horizontal and vertical sync to be buffered and have the polarity changed under software control

MultiVideo VDC Card: As above but for MultiScan monitors only.

SPECIAL OFFER

- Desk Jet 500 Mono Printer £264
- Desk Jet 500 Colour Printer £339
- Desk Jet 550C Colour £442
- HP Laserjet IV (600dpi) 8ppm £989

- Above prices include 3 years extended parts and labour warranty at no extra cost to you.
 - At an additional cost of £50, we will convert the above warranty to 3 years on-site warranty.
 - Archimedes Printer Driver for DJ 500 Colour Printer £15
- (P.S. DJ 500 mono no driver required)

Panasonic Printers

- KX-P1123 £126
- KX-P1124i £170
- KX-P1170 £99
- KX-P1624 £250
- KX-P1654 £332
- KX-P1695 £267
- KX-P2624 £268
- KX-P2180C £146
- KX-P2123C £197
- KX-P2180M £156
- KX-P2123M £176
- Colour Kit for P2180M/2123M £-

* Price includes 12 months On-site warranty

Cut Sheet Feeders

- P36 - 1124/24i £79
- P37 - 1123/70/80 £69
- P38 - P1624/95; P2624 £129

Buffers

- P12 4K Buffer Board for KX-P1081 £55
- P14 32K Buffer P1123/24/70/80 £16
- P1540/92/95; P1624/54/95

Serial Interfaces

- P13 for P1123/24/24i/70/80/1624/54/95/2624 £49

Original Panasonic Ribbons

Guaranteed to last 3 million characters

- P110 for KX-P1081, 1592 & 1595 £6
- P115 for KX-P1180 £7
- P145 for KX-P1124 £7
- P140 for KX-P1540 £8
- P155 for KX-P1624 £8
- Colour Ribbons for KX-P1081, 1592 & 1595
- Brown, Blue or Red £9 each
- P150C Colour for P2123/2180 £15

Citizen Printers

- 120D Plus £95
- 224 £174
- 240 Colour £212
- PN-48 £199
- Swift 9 £145
- Swift 24X £299
- 24X Colour Opt £32
- PN48 Ribbon £4
- AH29804 Manual Cut Sheet Feeder for Swift 9/24/124. Holds 50 Sheets £29
- + FREE 2 years Parts and Labour warranty on all Citizen Printers

- Swift 9 Colour Option £19
- Swift 24 Colour Option £29
- Swift 24 Ribbons Black £4
- Swift 24X Ribbons Black £8
- Citizen/Archimedes Colour Printer Driver £15

Star Printer Ribbons

- LC10; LC10-II; LC15 Black £4; Colour £6
- LC-200; LC24-200 Black £5; Colour £12
- XB24-10; XB24-15 Black £5; Colour £12
- Dust Covers for Star Printers £6

Star Printers

- | | | | |
|-----------------|------|-----------------|------|
| LC15 | £168 | LC200 Colour | £140 |
| LC20 | £99 | SJ48 Inkjet | £165 |
| LC100 Colour | £136 | XB24-200 Colour | £288 |
| LC24-15 | £233 | XB24-250 Colour | £350 |
| LC24-20 | £148 | XB24 Colour kit | £29 |
| LC24-100 Colour | £162 | ZA200 Colour | £230 |
| LC24-200 | £162 | ZA250 | £295 |
| LC24-200 Colour | £205 | | |

- Star/Archimedes Colour Printer Driver £15
- * Includes 12 months On-site warranty

Cut Sheet Feeder

- | | | | |
|----------------|-----|--------------|------|
| LC10/200/24-10 | £65 | LC15/LC24-15 | £125 |
| XB24-10 | £80 | XB24-15 | £139 |
| XB24-200 | £99 | XB24-250 | £149 |

Serial Interfaces

- | | | |
|--------|--|-----|
| 8K Ser | LC-200; LC24-200; FR10; FR15; XB24-10; XB24-15 | £52 |
|--------|--|-----|

Buffers

- | | |
|--|-----|
| 32K Ram Card for LC/XB24-10; 15; LC200 | £55 |
|--|-----|

Laser Printers

All Laser Printers include 12 months On-site maintenance

- | | | |
|---------------------------------|--------|-------|
| Brother HL-4 | 4ppm | £490 |
| Brother HL4-V | 4ppm | £639 |
| Brother HL4-PS Postscript | 4ppm | £970 |
| Brother HL-10V | 10ppm | £1059 |
| Brother HL10PS | 10ppm | £1329 |
| Brother HL10DV | 10ppm | £1149 |
| Brother HL10DPS | 10ppm | £1449 |
| Brother HL8-V | 8ppm | £895 |
| Canon LBP4 LITE | 4ppm | £479 |
| Canon LBP4+ 1.5M RAM | 4ppm | £632 |
| Canon LBP-8III Plus | 8ppm | £945 |
| Epson EPL4300 | 4ppm | £570 |
| Epson EPL4000 | 6ppm | £475 |
| Epson EPL7500 | 6ppm | £1139 |
| Epson EPL8100 | 10ppm | £939 |
| Fujitsu VM800 | 8ppm | £699 |
| HP Laserjet IIP+ | 4ppm | £530 |
| HP Laserjet III | 8ppm | £1009 |
| HP Laserjet IIID | 8ppm | £1487 |
| HP Laserjet IIIP | 4ppm | £685 |
| HP Laserjet IIIsi | 16ppm | £2510 |
| HP Laserjet IV (600 dpi) | 8ppm | £989 |
| NEC Silentwriter S62P P/script | 6ppm | £1059 |
| NEC Silentwriter 266 | 8ppm | £669 |
| NEC Silentwriter 290P P/script | 8ppm | £1369 |
| NEC Silentwriter S102 | 8ppm | £989 |
| OKI OL400 | 4ppm | £440 |
| Panasonic KX-P4410 | 5ppm* | £515 |
| Panasonic KX-P4420 | 8ppm* | £615 |
| Panasonic KX-P4430 Satin Print* | 5ppm* | £586 |
| Panasonic KX-P4451 | 11ppm* | £1085 |
| Panasonic KX-4455 Postscript | 11ppm* | £1359 |
| Star LP-8 III 2 | 8ppm | £1249 |
| Star LP-8 III | 8ppm | £890 |
| Star LP-8 Star(post)script | 8ppm | £1130 |
| Star LP-4 | 4ppm | £565 |
| Star LP-4 Mk 3 | 4ppm | £589 |
| Star LP-4PS Postscript | 4ppm | £769 |

* Now with 2 years On-site warranty

Laser Toners

- | | | | |
|-------------------|------|------------------------|-----|
| Canon 2, 3 & 4 | £46 | Star LP4/LP8 | £56 |
| Epson GQ | £13 | KX-P4420/30 | £24 |
| EPL 4100 | £69 | Laserjet HP IIP & IIIP | £42 |
| EPL7100/7500/8100 | £125 | Laserjet II/D, III/D | £48 |
| | | Qume Crystal (3) | £58 |

Laser RAM Upgrades

- | | | | |
|---------------|------|--------------|------|
| IIP; IIIP 1Mb | £49 | EPL7100 256K | £39 |
| IIP; IIIP 2Mb | £80 | GQ5000 512K | £42 |
| IIP; IIIP 4Mb | £132 | KX4420/50 1M | £75 |
| II & IID 1Mb | £60 | KX4420/50 2M | £115 |
| II & IID 2Mb | £96 | KX4420/50 4M | £195 |
| II & IID 4Mb | £142 | Star LP8 1M | £139 |
| Canon LBP4 1M | £105 | Star LP8 2M | £275 |
| Canon LBP8 2M | £125 | | |

Laser Drum & Developer

- | | | | | |
|-----------------------|--------|-----|-----------|------|
| • Epson Drum | GQ5000 | £93 | EPL7100 | £129 |
| • Panasonic 4420 Drum | | £60 | Developer | £59 |
| • Panasonic 4450 Drum | | £93 | Developer | £80 |
| • Qume Drum | | £76 | Developer | £56 |

Jetpage Postscript Cartridge

- | | | | |
|--------------|------|------------|------|
| • HP IIP/III | £225 | IID & IIID | £227 |
|--------------|------|------------|------|

Various Add-Ons

- HP Adobe Postscript £399
- HP Premier Font Collection £28
- Laserjet various Font cartridges from £45
- Canon LBP-4 Lower Cassette Tray £75

Hewlett-Packard Printers

DeskJet 500	#£264	DJ500 colour	#£349
DJ550 colour	#£442	Paint Jet	+£498
Paint Jet XL	+£1045	PaintJet XL300	+£1779
QuietJet	+£293	QuietJet plus	+£379
Think Jet	+£259		

Includes 12 months on-site warranty
Includes 3 years extended parts & labour warranty
• For additional £50, we will convert above warranty to 3 years on-site warranty

• DeskJet 500 Cart. Black	£14;	Colour	£23
• Paintjet Cartridges Black	£19;	Colour	£23
• Desk Jet 500 256K RAM cartridge			£69
• HP Epson FX Emulation Cartridge for Desk Jet			£59
• DJ 500 High Capacity Black Cartridge			£21
• DJ 500 Colour Archi Printer Driver			£15

Plug In Font Cartridges for DJ 500

• 22706B - Prestige, Elite, Line Draw fonts	£55
• 22706C Letter Gothic & HP Line Draw fonts	£56
• 22707P - ProPrint Emulation Cartridge	£57
• Desk Jet Unlimited (Book No VAT)	£19.75

Canon Bubblejet Printers

Printer	CSF	D'ble Bin	Ink Cart
BJ10EX	£160	£43	£16
BJ20	£248	-	£16
BJ300*	£284	£88	£12
BJ330*	£373	£110	£12
BJC800C	£1355	-	-

* Includes 12 months On-site warranty

• Spare Battery pack for BJ10E	£33
• BJ10EX - Archi Turbo Driver	£42

Special Offer:

Canon BJ10EX Printer + CC's Turbo Driver	£210
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NEC Pinwriter Printers

• P20#	£169	• P70	£396
• P30	£237	• P90	£605
• P60	£322		

• P60/70 Colour Option Kit £59

• Ribbons Black for P20/30 £6 for P60/70/90 £7

• Ribbons for P60/70/90 Black £9 Colour £13.50

Includes 12 months on-site warranty

Cut Sheet Feeders

P20	£59;	P30	£85;	P60	£89;	P70/90	£80
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Epson Printers

DFX5000	£1069	LQ1170	£429
DFX8000	£1920	LQ2550+	£669
FX850	£135	LX400	£90
FX1050	£322	LX850+	£134
LQ100	£144	LX1050	£199
LQ570	£197	SQ870	£409
LQ870	£352	SQ1170	£560
LQ1060 Colour	£588	SQ2550	£669
LQ1070	£308		

• Tractor Feed for LQ100	£29
• Original Ribbon for LQ100	£6

Cut Sheet Feeders for

LQ570, LQ870	£47
LX400/850/LQ200/400/450/500/550	
LQ1010/1070/1170	£72
LX1050	£115
FX850/LQ860	£128
FX1050/LQ1060/SQ850	£155
LQ2550	£299
SQ2550	£210

Tractor Feed for

LQ800	£44;	LQ850/FX850	£69;	LQ1050/FX1050	£85;	LQ2500	£90;	LQ2550	£90.
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Accessories

• EX800/1000 Colour Option	£45
• EX800/1000 Colour Ribbon	£14
• LQ2500 Colour Option	£65
• Multifont Card for LQ550/850/1050	£95

Epson Printer Interfaces

RS232	£28	RS232 + 2K Buffer	£52
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Printer Leads

BBC Centronics 4' long	£5
BBC Centronics 6' extra long	£7
Compact's Special Centronics Lead	£7
Nimbus Centronics Lead	£6
IBM/Archimedes Parallel Lead 6'	£5
IBM/Archimedes Parallel Lead 5 metres	£10
IBM/Archimedes Parallel Lead 10 metres	£15
Double Ended 36 way Centronics Lead 4'	£7
Double Ended 36 way Centronics Lead 6'	£9
RS232 Leads (Various)	P.O.A.

Laser Direct

- Special High Res Card 600 DPI for Canon LPB 4 & LPB 8 Laser Printers £315
- LPB 4 Printer plus High Res Card £945
- LPB 8III Printer plus High Res Card £1275
- LPB 4 Optional Paper Tray £79

Fujitsu Printers

B-100	£205	DL1100	£217
B-200	£270	DL1100 Col	£267
DL-900	£181	DL1200	£363

Ribbons

DL900/1100/1200	Mono	£5	Col.	£11
B-100/200 Ink Cartridge				£15

Concept Keyboards

Standard A3 Keyboard with BBC Software	£125
Standard A4 Keyboard with BBC Software	£99
Archi A3 Keyboard	£124
Archi A4 Keyboard	£100

Listing Paper (Perforated)

- 1,000 Sheets 9.5" x 11" Fanfold Paper £7
- 2,000 Sheets 9.5" x 11" Fanfold Paper £11
- 1,000 Sheets 9.5" x 11" NCR 2 Part Fanfold £21
- 1,000 Sheets 15" x 11" Fanfold Paper £9
- 2,000 Sheets 15" x 11" Fanfold Paper £16
- 1,000 Sheets true A4 Fanfold Paper 70gms £11
- 2,000 Sheets true A4 Fanfold Paper 70gms £21
- Teleprinter Roll (Econo paper) £4
- Telex Roll 50 metre £3

(All our Fanfold paper is Micro perforated leaving a smooth clean edge when the tractor feed strips are detached).

Carriage 1K Sheets £2.50, 2K Sheets £3.00

Printer Labels

(On continuous fanfold backing sheet)

1,000 off, 90 x 36mm (Single Row)	£6.00
1,000 off, 90 x 36mm (Twin Row)	£6.25
1,000 off, 90 x 49mm (Twin Row)	£7.50
1,000 off, 102 x 36mm (Twin Row)	£6.75

Laser Printer Labels on A4 Sheets

3750 off, 70 x 29mm (3 Rows x 10)	£15.50
2400 off, 70 x 37mm (3 Rows x 8)	£15.25
2625 off, 70 x 42mm (3 Rows x 7)	£15.00

Printer Ribbons & Various Dust Covers

Type	Ribbons	Dust Covers
BBC B/BBC Master	-	£4.00
Archimedes Micro pair	-	£9.00
Citizen 120D	£3.25	£5.00
DMP2000/4000	£3.75	£4.95
EX800/1000	£3.50	£5.00
RX/FX80/85/800/MX80	£2.95	-
FX/MX/RX100/1000	£3.95	-
Kaga/Taxan KP810/815	£3.25	£5.00
LQ400/500/550/800/850	£3.25	£6.00
LQ1050/LQ2500	£12.00	-
LX80/86	£2.75	£4.50
LX400/800/850	£3.50	£5.00
M1009/GLP	£2.95	£3.75
NEC P2200	£4.50	£5.00
Panasonic KX1080/81	£6.00	£5.00
Panasonic KX-P1124	£7.00	£5.00
Star LC24-10	£2.95	£6.00

Professional Printer Stand



The professional printer stand takes hardly more space than your printer. Due to the positioning of the paper feed and re-fold compartments ie. one above the other, the desk space required for your printer functions is effectively halved. Its ergonomic design ensures smooth paper flow and automatic refolding.

80 Column version £24 (carr. £3)
132 Column version £29 (carr. £4)

Universal Printer Sharers/Changer

Connect up to 5 Micros to 1 printer or 5 printers to 1 Micro with our combined, Sharer/Changer switch boxes.

Standard Low Cost Type

Connects	Serial	Parallel
• 2 to 1	£12	£13
• 3 to 1	£16	£18
• 4 to 1	£23	£24

Professional Type

Connects	Serial	Parallel
• 2 to 1	£17	£18
• 3 to 1	£22	£25
• 5 to 1	£34	£38

Cables extra at £6 each

Cross Over Manual Switch

2 In/2 Out Parallel	£29
2 In/2 Out Serial	£28
3 In/2 Out Serial	£36

Auto Printer Sharer

Connects	Serial	Parallel
2 to 1	£40	£45
4 to 1	£62	£49
8 to 1	-	£89

256k Multi Spooler

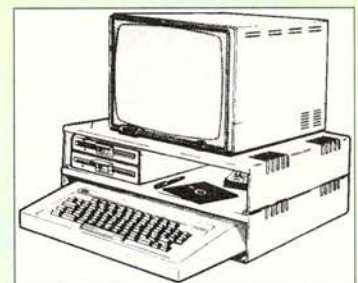
These Auto Parallel Printer Sharers have built-in 256K of Printer Buffers. They can be used as Auto Sharers, Printer Buffers or both.

• 2 In/2 out	£135	• 4 In/2 out	£169
• 8 In/1 out	£199		

Compact Converter Units

Serial to Parallel	£36	Parallel to Serial	£37
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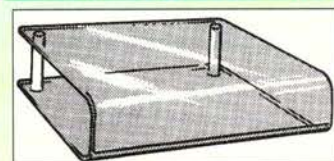
Plinths for the BBC B, BBC Master & A3000



Protect your computer from the heat of your VDU. Our micro plinths have slots for maximum ventilation. The single plinth is suitable for a BBC and VDU, whilst the double height version provides enough room for our stacked disc drive and other peripherals like, Eprom programmer, music unit or simply discs & stationery. The computer slides neatly in the lower section allowing easy access to remove the lid. Colour: Matching BBC Beige.

• Single BBC Plinth	420 x 310 x 105mm	£13
• Double BBC Plinth	420 x 310 x 210mm	£24
• Single Master Plinth	490 x 310 x 105mm	£14
• Double Master Plinth	490 x 310 x 210mm	£26
• A3000 Single Plinth (very sturdy & precision made), has a slot on the left for the switch & cut out on the right for 3.5" Disc Drive		£15

Perspex Printer Stand



Give your Computer System a touch of Class with our elegant, smoke finished Perspex Printer stand.

80 Column version	£16 (carr £3)
136 Column version	£20 (carr £4)

Continued → → → → → → → →

QUEST MOUSE Mk III



- Quest Mouse III & Quest Paint £49
 - Quest Mouse III, Quest Paint, AMX Stop Press & Pagefont £69
 - Quest Mouse III only £25
 - Quest Paint Software only £28
 - Quest Font Disc (22 Text Fonts) £15
 - Quest Mouse Mat (Red or Blue or Green please specify) £3
 - Quest Colour Dump Disc – This new software allows you to print direct from Quest Paint to your Integrex Colour Printer £18
- (P.S. Quest Paint is not compatible with BBC Compact)

Quest Paint is the winner of the BBC Acorn User 1990 Award for the Best Art/Graphics software

ConQuest

Quest combined with ConQuest and Acornsoft GXR ROM make up THE MOST POWERFUL drawing packages available for the BBC range. Quest Paint is able to take advantage of almost any additions to your machine, such as Shadow or Sideways RAM. ConQuest takes this principal even further, by utilising the otherwise normally incompatible Sideways RAM facility by holding pictures in them.

- ConQuest ROM Package £28**
- (Price includes software in ROM and a comprehensive Manual).
(Not Compatible with BBC Compact).
(P.S. Conquest is a Quest Paint extension ROM).

Quest – Tracer ball

An attractively finished, extremely reliable, mouse replacement, input device. Requires very little desk space. Connects directly to your BBC B, BBC Master or Archimedes Micro.



- QT-10 BBC/Master Version £25**
- QT-20 Archimedes Version £26**

Mouse Cleaning Kit

To obtain trouble free operation and prolong the life of your mouse, the high tech rodent requires regular cleaning. Our deluxe mouse cleaning kit is ideal for the purpose £3



**CREDIT CARD 24 HOUR
Ansaphone Hot Lines
(0923) 250234 or 233383**

Archi Mouse Port Splitter

Our handy little splitter unit eliminates the risk of damaging your micro due to constant plugging and unplugging of the mouse by allowing you to connect both, a joystick and a mouse simultaneously to your Archimedes. £15

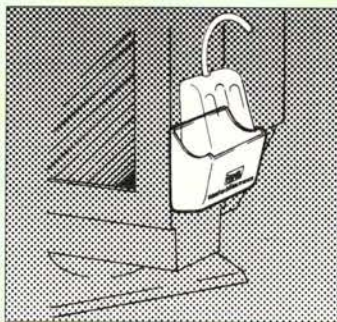
Mk III AMX MOUSE

• AMX Mouse plus Super Art £49

(Please specify for BBC, Master or Compact)

- AMX MOUSE ONLY £25
- AMX SUPERART Package £26
- AMX STOP PRESS – A Desktop publishing software. Works with Keyboard, Joystick or a mouse £25
- PAGE-FONTS – Over 20 Fonts for use with AMX Pagemaker £13
- AMX DESIGN (ROM) £29
- AMX EXTRA EXTRA £16
- MOUSE MAT £3

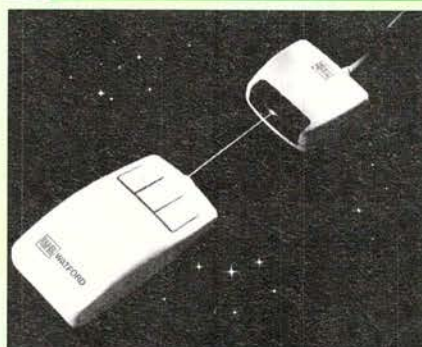
WE Mouse House



Treat your mouse to a cosy Mouse House. This handy little gadget solves the problem of where to store your mouse when it is having a rest. Made of sturdy plastic, the WE Mouse House attaches to the side of your computer, monitor, disc drive etc.

Only £3

Archi Cordless Mouse



Features

- Infra Red Signal Transmission
- High Resolution 200 DPI
- High Tracking Speed of 600mm/s up
- Anti-static Silicon Rubber Coated Ball
- Low Friction Teflon Footpads
- Power - by two AAA size batteries (not included)
- Automatic Standby Mode after 5 seconds inactive
- Auto Power Shut-Down after 20 seconds inactive

Price £39

BEEB VIDEO DIGITISER



"Test Bureau Approved for Use in Education"

Using any source of composite video (colour or monochrome) and the Watford Beeb Video Digitiser, you can convert an image from your camera into a graphics screen on the BBC Micro. This uses the full graphics capacity of the BBC micro in modes 0, 1 or 2. The video source may be a camera, video recorder or television, and is connected via the video output socket. The software supplied includes a sophisticated, fast screen dump routine.

Images produced can be compressed, stored to disc, printed on an Epson compatible printer, directly used to generate graphics, analysed for scientific and educational use or converted to other formats e.g. Slow Scan TV or receiving a picture from a remote camera using a modem. The output from the digitiser exactly matches the graphics capability in each mode, with up to 8 levels of grey in mode 2. The unit connects into the User Port and automatically scans a complete picture in 1.6 seconds.

£75

(BBC B+ and Master compatible, except Master with Econet)

(Price includes) Digitiser Unit, Software in ROM & a Comprehensive Manual)

Beeb Hand Scanner

Hand-held Scanner for the BBC Micro



Watford Beeb HandScan is a compact unit which will allow photographs, diagrams, or any other documents to be digitised quickly and easily, to then be used in a desk top publishing package, art program, or even in your own Basic programs!

The HandScan plugs directly into the 1MHz bus on the BBC while a comprehensive set of utilities provided by the sophisticated ROM firmware. The scanner has a resolution of either 100 DPI or 200 DPI when accuracy is essential. Pictures as wide as 4" may be scanned in mode 0 and various types of dithering may be selected to simulate the grey levels of a scanned picture.

All necessary software has been included in the firmware to allow the scanner to read images directly into our Wapping Editor with little more than the click of the mouse. The digitised picture may then be incorporated into your magazine, newsletter, report or any other document.

Beeb HandScan & Firmware

£99



**Winner of the BBC Acorn User 1990
Award for the Best DTP/Word Processor**

The Wapping Editor

The Wapping Editor from Watford Electronics represents a breakthrough in Desktop Publishing for the Beeb. The package includes a 64K ROM containing ALL the software needed to get into print fast; a very sophisticated graphics module, professional quality typesetting software, a word processor, a comprehensive font editor for designing your own typefaces, and a variety of printer dumps. This mouse-driven system is designed for the BBC B, the B+ and Master computers and will take full advantage of any Sideways and Shadow RAM that may be fitted. It will run under DFS, ADFS and Network filing systems and requires as a minimum just a single 40 track drive.

Included with the system is a utility disc containing several high quality fonts, various utilities and a ROM image of a Support ROM. A comprehensive 100 page manual completes the package. The Support ROM contains routines to allow an area to be rotated to any angle or distorted to any four-sided shape. Also included are facilities to draw ellipses at any angle and sectors, segments and arcs (in Master or BBC B with Acorn GXR). Another of the features of the Support ROM is a 'Turbo DFS' which gives DFS access times comparable with those of ADFS.

Page Layout Section

The Wapping Editor may be used to create pages of any size from an A6 to a full A3 page. If none of the eight default page types suit your purpose, the stand-alone page creation program may be used to create pages to your own requirements. By using proportionally spaced fonts and genuine microspacing it is possible to print over 150 characters across an A4 page. A unique feature of the Wapping Editor is the 'A5 x 2' page size allowing two A5 pages to be printed side by side onto a single A4 sheet.

The graphics module incorporates the facilities like: pencil, brush, airbrush, polygon, circle, ellipse, fill, cut & paste, etc.

Text may be typeset, either justified or unjustified, in any font anywhere on the page. Simply select which font and text document you wish to use, and pull out a rectangle on the page where you want the text to be - it's as simple as that! Multiple columns may be printed just as easily and a special 'expand' feature may be used to expand the microspacing so that the document exactly fits the space defined.

Word-Processor

The integral word processor is the ideal tool for producing your text documents, although text can of course be read in from any of the other popular word processors such as View, Wordwise etc.

The Font Editor

The font editor module will allow you to design your own typefaces or to modify the ones provided on the utility disc. This sophisticated editor has numerous functions designed to take the tedium and frustration out of producing good looking, well balanced fonts. Each character may be individually proportionally spaced and characters of any size up to 16 x 16 pixels may be defined.

Pictures may also be 'grabbed' from a video source by using the Watford BEEB Video Digitiser.

Wapping Editor Software Pack £49
Wapping Editor plus Mouse £69

(Wapping Editor only works with Master Compact if a Mertec Expansion box is fitted)

Wapping Art Disc

Over 250K of clip art to cut and paste into your Wapping Editor pages. Pictures include maps, transport, people, media, sport, games etc. Two 'ratio' screens for use with hi-res and rotated A5 pages to ensure images are not distorted when printed out.

Music writing symbols in the form of pattern and brush for quick production of manuscripts are included together with staves.

There are two prepared hi-res pages laid out for printing labels, both single and double width. Ready made label designs are included but these can be easily replaced with your own designs.

A Mode 0 screen dump routine is also included. To pack such a large amount of data onto the discs the screens have been compressed and routines to compress and expand Mode 0 screens are included on both discs. Using the packing routine you can archive large numbers of screens onto a single disc.

£15

Wapping Font Disc 1

Sixteen additional fonts, including smaller version of Oberon and Daisy and two new sizes of the standard font for the Wapping editor.

Also included are three Mode 0 screens containing giant 'headline' fonts to cut and paste to create extra smooth headlines.

Supplied complete with instructions.

£12

Wapping Font Disc 2

This new addition to our Wapping range of DTP software provides you with additional 23 fonts for the Wapping Editor DTP pack. (80 track discs only).

£13

Archi A4 Scanner



This most advanced Archi A4 image scanner is supplied complete with ROM based podule software. Features provided include facilities for zooming in on an image and inverting the image in X and Y directions, saving and printing of the sprite created. Interactive help is supplied using the !HELP application on the Acorn applications discs.

The 216mm scanning width can cope with both desktop scanning of single sheets, photographs, diagrams, etc., with its fast ten page automatic document feeder, but it can also detach from the feeder to become a convenient hand-held full page scanner for larger documents or pictures.

Scanned image control can be freely adjusted in increments of 10 dots per inch from 100 up to 400 dpi resolution with 64 levels of grey scaling. A built in shading controller and manual brightness control achieve optimum image clarity.

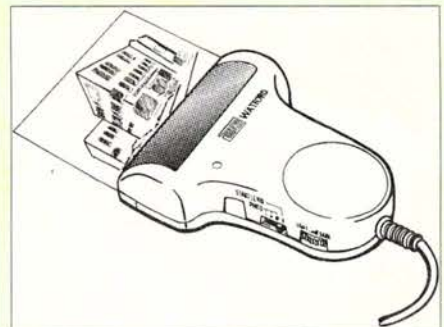
Unlike some scanners, which use a red light source, the Watford scanner uses a yellow/green source which vastly improves the light/dark contrast, thus eliminating the effect where any red-based colours are faded down to white and so do not show up in the scanned image.

All these features and facilities combine to make the Archi Page Scanner the fast and convenient way in which to add that extra impact, interest and clarity to documents, reports, instruction sheets, manuals, news letters, etc., from your Archimedes DTP package.

New Low Prices:

Archi A4 Scanner £269
Sheet Feeder for above £75
Scanner + Sheet Feeder £359

Archi Mk II Hand Scanner



Watford's Mk II hand scanner has a maximum resolution of 400 dpi. The scanning width is 4". The sophisticated software is supplied in a 64K ROM, located on a standard single width expansion podule. As you scan a page, the image appears in the scanning window on the screen, scrolling up in real time. Other facilities include Cropping and scaling to any size including stretching and squashing in X and Y directions separately. Colour tinting. X and Y flip. Edge detection which turns solid objects into outlines.

Images can be printed on any printer supported by RISC OS.

On-screen help is provided via the RiscOS interactive help facility. (Please write in for full technical details).

AHS-4 Archi 300/400 Version £109
AHS-3 Archi A3000 Version £119

Z88 Portable Micro



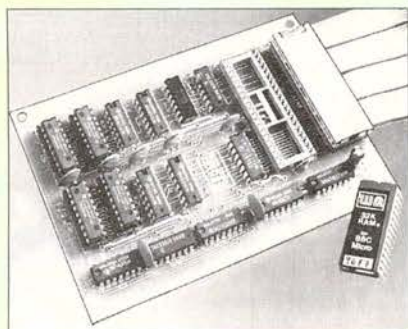
• Z88 Portable Micro £169
• 32K RAM Pack or 32K EPROM Pack £16
• 128K RAM Pack or 128K EPROM Pack £32
• 512K RAM Pack £86
• 256K EPROM Pack £55
• Z88 EPROM Eraser Unit £38
• Z88 Carrying Case £8
• AA Nicad Rechargeable Battery £1.50
• Battery Charger Compact & Fast £6
• Z88 Serial Printer Cable £8
• Z88 Parallel Printer Cable £18
• Z88 to Archi Link £15
• Z88 to BBC Link £8 • Z BASE £56
• Z88 to PC Link II £27 • Z88 to Macintosh £32
• Z88 Mains Adaptor £9 • Z88 Modem £114



**CREDIT CARD 24 HOUR
Ansaphone Hot Lines
(0923) 250234 or 233383**

Continued → → → → → → → → →

32K Shadow RAM/Printer Buffer Card Expansion Board



A MUST FOR WORD PROCESSING

Simply plug the ribbon cable plug into the 6502 socket and gain a massive 32K of extra RAM.

- "VIEW" Wordprocessor users can now type in letters in 80 columns and have up to 28K bytes free – 5 times as much as normal.
- In WORDWISE (or WORDWISE-PLUS), preview in 80 columns with the full 24k of text in memory. This product is recommended as an ideal complement by Computer Concepts.
- Use the full 32k or the bottom 12K of the expansion RAM as a printer Buffer. (P.S. Only 12K printer buffer can be used with Wordwise & WW+, due to the way they are written).
- Unique facility to turn ROMs off and on again.

Only £49

Commander Joystick



Features:

- Direct connection to BBC Analogue input port – no interface needed.
- Fully compatible with all BBC Joystick controlled games programmes.
- Switchable springs allow selection of floating or centring operation.
- Trim adjusters for both X and Y axes for fine centre adjustment.
- Convenient stick mounted fire button with additional base buttons.

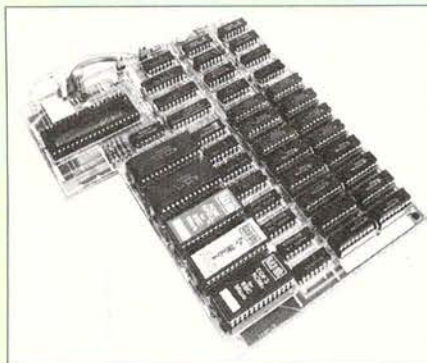
Price: £15

(PC version of above joystick available at £16)

Voltmace Joysticks

Delta 3B Single Joystick	£10
Delta 3B Twin Joysticks	£15
Delta 3C Joystick for Compact	£10
Delta 14B Single Joystick	£11
Delta 14B/1 Adaptor Module	£12
Transfer Software Disc-Tape	£7
Delta-Cat A mouse eliminator Joystick for the Archimedes	£24
Analogue aircraft style yoke Joystick to run in the analogue port of the BBC B & Master 128	£25

ROM/RAM Card



- NO SOLDERING required to fit the board.
- Fully buffered for peace of mind.
- Compatible with BBC micros (not BBC+ or Master).
- Total number of ROMs increased from 4 to 8.
- Up to 8 banks of sideways RAM (dynamic).
- Option for 16k of battery backed CMOS RAM (CMOS RAM needs one ROM socket).
- Software Write protect for ALL RAM.
- Read protect for CMOS RAM.
- Separate RAM write register (&FF30 to &FF3F).
- Automatic write to currently selected RAM socket for convenience.
- FREE utilities disc packed with software.
- Large printer buffer.
- UNIQUE fully implemented RAM FILING SYSTEM (similar to the popular Watford DFS).
- ROM to RAM load and save facilities.

The SFS (Silicon Filing System) can utilise up to the full 128k of RAM (with the SFS in any paged RAM) as a SILICON DISC. This behaves as a disc drive, with all the normal Watford DFS features (including OSWORD &7F for ROMSPELL, etc.) to provide an environment that looks like a disc but loads and saves MUCH faster.

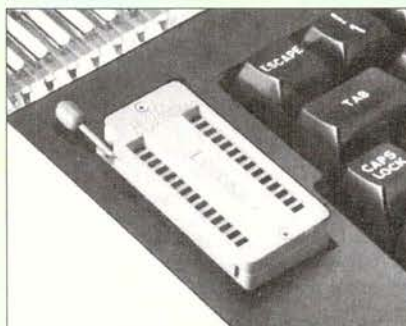
PRICES:

• ROM/RAM card with 32k DRAM	£39
• ROM/RAM card with 64k DRAM	£52
• ROM/RAM card with 128k DRAM	£83

OPTIONAL EXTRAS:

• 16k plug-in Static RAM kit	£8
• 16k DRAM for Upgrade	£13
• Battery backup	£3
• Read and Write protect switches	£2 each
Complete ROM-RAM card with all options fitted	£109

Sideways ROM ZIF Socket System



Allows you to change your ROMs quickly and efficiently, without having to open the lid. The ZIF socket is located into the ROM Cartridge's position. It is very simple to install. No soldering required. Also included in the price is a plastic see through storage case with antistatic lining, which allows you to store 12 ROMs.

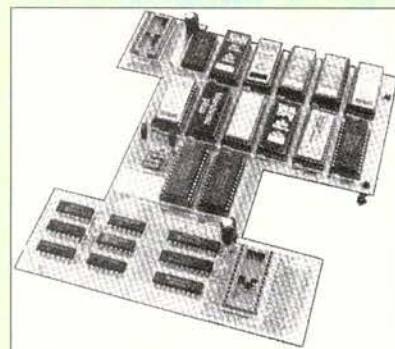
£18

ROM Cartridges for the BBC Master

Will accept the larger Piggy Back ROMs like Interword, Quest, etc.

• Twin £8; • Quad £13

Solderless Sideways ROM Socket Board



- Increases your BBC Micro's ROM capacity from 4 to 16.
- No soldering required.
- Socket 14 takes two 6264 RAM chips.
- Read protect to make RAM "Vanish" allows recovery from ROM crashes.
- Battery backup option for RAM chips.
- Supplied ready to fit with comprehensive instructions.

Price: Only £32

Battery Backup fitted £35

Battery Backup only £3

16K Sideways RAM £8

- Sideways RAM Utilities Disc for Solderless ROM Board. Includes the options to load and save ROM Images and the facility to use Sideways RAM as Printer Buffer.

Only: £8

Connecting Leads

(All ready made and tested)

CASSETTE LEADS 7 pin DIN Plug to 3 pin DIN Plug + 1 Jack Plug	£2.50
to 7 pin DIN Plug	£3.00
to 3 Jack Plugs	£2.50
6 pin DIN to 6 pin DIN Plug (RGB)	£3.00

Disc Drive Power Leads

Supply from BBC power supply to standard Disc Drive Connection: Single £3.00; Dual £3.75

Disc Drive Interface Leads

BBC to Disc Drives Ribbon Cable
Single £4 Twin £6

Miscellaneous Connectors

	Plugs	Sockets
RGB (6 PIN DIN)	50p	75p
RS423 (5 pin Domino)	70p	80p
Cassette (7 pin DIN)	40p	95p
ECONET (5 pin DIN)	35p	50p
Paddles (15 pin 'D')	150p	250p
Disc Drive Plug 4 way	100p	–
6 way Power Connector	120p	150p

Watford DATA DUCK

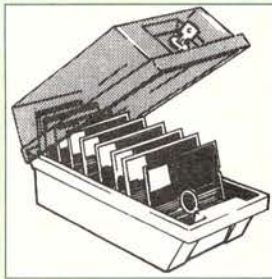
Convert two single Disc Drives into one Dual Drive with this simple external unit (Suitable for Disc Drives with PSU. For Disc Drives without PSU, you will also require Watford Power Duck, see below).

£14

Watford POWER DUCK

£8

Antistatic Lockable Disc Storage Units



- **M35** – holds up to 50 5.25" discs £4.95
 - **M85** – holds up to 95 5.25" discs £6.95
 - **M25*** – holds up to 25 3.5" discs £4.95
 - **M50** – holds 50 3.5" discs £6.50
 - **M100** – holds 100 3.5" discs £6.99
 - **M10** – holds 8 of No. 10 Data Cartridges £15
- * Not lockable

Disc Plonker Rack

When using ones micro, there is a tendency to have more than one Disc on the desk. This exposes them to the hazards of fingerprints, scratches, dust, coffee and an untidy desk. Why not protect your valuable data from all these hazards with the help of our extremely handy and low cost DISC PLONKER RACK. Holds up to eight 5.25" discs.

Protection at Only: £2



3M – Diskettes

Lifetime warranty on 3M Discs

- 10 x 5.25" S/S D/D 40T (744) £5
- 10 x 5.25" D/S D/D 40T (745) £5
- 10 x 5.25" S/S D/D 80 Track (746) £7
- 10 x 5.25" D/S D/D 80 Track (747) £7
- 10 x 5.25" 1.6M D/S D/D High Density for IBM XT and AT £8
- 10 x 3.5" S/S D/D 40/80 Track £6
- 10 x 3.5" D/S D/D 40/80 Track £6
- 10 x 3.5" Double Sided High Density £11

Top Quality Diskettes

Watford's life time guaranteed disc are supplied complete with self stick labels & plastic library case.

- 10 x **M3** 3.5" D/S D/D 80 Track £6
- 10 x **M9** 3.5" D/S High Density £10
- 10 x **M4** 5.25" S/S D/D 40 Track £5
- 10 x **M5** 5.25" D/S D/D 40 Track £5
- 10 x **M7** 5.25" D/S D/D 80 Track £6
- 10 x **M8** 5.25" D/S H/D Hi-Density £9
- **M2** 3" Double Sided £2.50 each

Special Bulk Offer Discs

(Lifetime warranty on Discs)

BULK PACK DISCS in lots of 100

Type	S/S 40T	D/S 40T	D/S 80T
• Without Sleeves 5.25"	£25	£30	£35
• With Sleeves 5.25"	£28	£33	£38
• 3.5" D/S D/D	£21 for 50	£39 for 100	

3.5" Disc Drive



These top quality 3.5" Double sided, 80 track, are attractively finished in BBC beige. They are supplied complete with all cables and a Utilities Disc.

Type	Description	
• CLS35:	Single Disc Drive, 400K	£59
• CLD35:	Twin Disc Drives, 800K	£109
	Disc Drive with PSU	
• CS35:	Single Disc Drive, 400K	£82
• CD35:	Twin Disc Drives, 800K	£126

(P.S. CS35 is supplied in a twin case with a blanking plate to enable easy expansion to a dual drive at a later stage)

Disc Drives in Monitor Stand



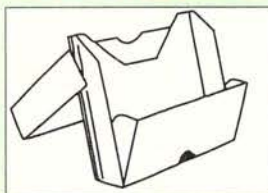
- **CDPM 800S** – Twin 5.25", 800K Double sided 40-80 track switchable disc drives mounted in an attractively finished Beige colour plinth for the BBC B & Master 128K micros. Supplied complete with integral power supply, cables and Utilities disc. The mains switch with neon On/Off light indicator, and the two 40/80 track switches are mounted on the front panel for ease of use.

£165

- **DP35 800** – Same as above except, one disc drive is a 5.25" and the other is 3.5".

£154

Plastic Library Cases



- DL1** – Holds 5 x 3.5" Discs. £1.50
- DL2** – Holds 10 x 3.5" Discs. £1.90
- DL3** – Holds 5 x 5.25" Discs. £1.60
- DL4** – Holds 10 x 5.25" Discs. £2.00

Disc Albums

Attractively finished in leather-look PVC Vinyl

- DW1** – Holds 6 x 3.5" Discs £2.50
- DW2** – Holds 6 x 5.25" Discs £3.00
- DW3** – Holds 20 x 5.25" Discs £3.50
- DW4** – Holds 40 x 3.5" Discs or 5.25" Discs £4.50

Floppy Head Cleaner Kit

The heads in floppy drives are precision made and very sensitive to dirt. The use of Cleaner Kit is a sensible precaution against losing valuable data. It is recommended to clean the drive head once a week. It is very simple to use. Available in 3.5" & 5.25", please specify.

Price £4

Acorn & Watford DFSs

- Watford sophisticated DFS ROM £16.00
- Watford DFS Kit complete £49.00
- DFS Manual (comprehensive) £6.95
- Acorn DNFS ROM £17.00
- Acorn ADFS ROM only £25.00
- Acorn 1772 DFS ROM Kit £49.00
- Acorn DFS Kit complete £48

Watford's MkII 1772

Single/Double Density DFS

Many of our customers have wanted to use our superior DDFS and Acorn ADFS together. Now our Mk II DDFS Board with its 1772 Disc Controller, has been adapted to allow the use of Acorn ADFS as well. It also has all the commands of the Acorn's 1772 DFS, plus many more added features.

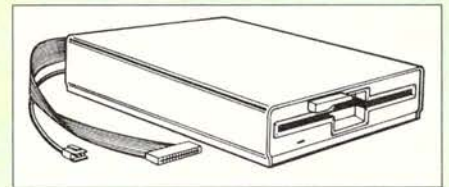
- Complete Kit Special Price £44
- DDFS Manual (No VAT) £6.95
- We will exchange your existing DFS Kit for our sophisticated DDFS for only £26

Quality Disc Drives from Watford

All our Disc Drives are Double Sided and will operate in both Single and Double Density modes. All 5.25" Disc Drives are 40/80 track switchable. For ease of use, the switches are front mounted. Follow the trend with a Watford plinth. (Turn to the 6th page of our advert for the Plinths).

P.S. All our 5.25" Disc Drives with PSU are compatible with the Compact Micro. All you require is our special Compact Disc Drive cables designed by us.

"Test Bureau Approved for Use in Education"



Our Disc Drives conform to BS415

Type	Description	
	Disc Drive without PSU	
• CLS400S:	Single, 40/80 track 400K Double sided Drive	£70
• CLD800S:	Twin, 40/80 track, 800K Double sided Drives	£138
	Disc Drive with PSU	
• CS400S:	Single, 40/80 track, 400K Double sided Drive	£80
• CD800S:	Twin, 40/80 track, 800K Double sided Drives	£149

Special Cable to connect both 3.5" and 5.25" Disc Drives simultaneously to the BBC Compact £13

Continued → → → → → → → → →

Computer Concept's ROMS

Inter BASE	£49
Inter CHART	£25
Inter SHEET	£37
Inter WORD	£36
Mega-3 ROM	£76
Spell Master	£42

Wordwise plus

£40

We are giving away absolutely **FREE**, the superb Word-Aid ROM worth £24, with every WORDWISE PLUS package bought from us.

Word-Aid

This advance utilities ROM extends the power of your Wordwise plus ROM.

- Alphabetical sorting of names and addresses.
- Text transfer options.
- Chapter marker.
- Epson printer codes function key option.
- Search and display in preview mode.
- Embedded command removal.
- Print Multiple copies of a document.
- Multiple file options for print and preview.
- Address finder.
- Label printer.
- Mail-merger.
- Number/delete/renumber.
- Clear test-segment area.
- BBC B, B+ and Master compatible.

Only £24

(N.B. Word Aid requires a Disc interface in your Micro)

Acorn ROMS

View 3.0 ROM	£45
Viewsheets (Acornsoft)	£36
Viewstore	£36
Viewspell - 80T disc	£25
View-Index	£12

View Printer Driver ROM



View is a powerful word processor, but it seriously lacks in terms of printer driver support. With the View Printer Driver ROM, the View users will find themselves in the realms of advanced word processing.

Price: Only £29

Mini Office 2 - Disc

for BBC B & B+	£12
for BBC Master	£14
for BBC Compact	£16

(When ordering please specify for which Micro & 40 or 80T Disc)

Assorted ROMS



ACORN ADFS	£25
ACORN BASIC 2 plus User Guide	£22
ACORN DNFS	£17
Acorn OS B+	£25
Acorn OS 1.2	£14
Beebmon	£22
Dump Out 3	£25
Graphics Extension Rom	
GXR-B	£21
GXR-B+	£22
Logotron LOGO	£43
MASTER OS ROM	£38
Master ULA (47)	£15
Master ULA (60)	£10
Numerator - Archi	£69
Numerator - BBC	£39
Pendown ROM	£32
Rom Manager	£20
SERIAL ULA	£13
TED	£35
Termulator Master	£32
Video ULA	£14
1Mb OS ROM	£39

Watford Electronics'
New High Tech
Computer Boutique
is now open in
Luton.
Don't miss your
chance to visit the
Acorn and
Watford Villages.

CHIP SHOP

1 MB-10 DIL D-RAM	£4.50
1 MB ZIF D-RAM	£4.00
256K x 4-8 DIP	£4.75
256K x 4-8 ZIF	£4.00
SIMs and SIPs	
• 256 x 9-8	£11
• 1Mb x 9-10	£22
• 1Mb x 9-8	£27

DS3691	£4.50
DS88LS120	£5.25
LM324	£0.45
SN76489	£5.50
SAA5050	£8.75
UPD7002	£6.00
2764-250nS	£3.00
27128A-250n (12V5)	£2.50
27128-250nS (21V)	£4.00
27256-2	£3.00
27512-2	£4.50
27C101G (1 Meg)	£7.00
• 4013	75p
• 4020	£1.00
• 4164-10	£1.55
• 4464-10	£3.50
• 4816 RAM	£2.00
• 41256-8	£2.00
• 41256-10	£1.50
• 6264LP-8K	£4.00
• 6502A	£5.00
• 65C02 3M	£9.75
• 65C12	£9.00
• 6512A	£10.00
• 6522	£4.00
• 6522A	£5.00
• 62256ALS	£10
• 62256P-12	£8.50
• 6818	£4.00
• 6845SP	£6.00
• 68B50	£2.95
• 68B54	£7.50
• 7438	50p
• 74LS00	50p
• 74LS04	50p
• 74LS10	50p
• 74LS123	£1.00
• 74LS163	£1.00
• 74LS244	£1.00
• 74LS245	£1.00
• 74ALS245	£2.75
• 74LS373	£1.00
• 74LS393	£1.00
• 75453	£1.00
• 75159	£3.00
• 8271	£39
• 9637	£2.00
• ICL7673PA	£3.00

Acorn Speech
Synthesizer package
complete, for the
BBC B Microcomputer
Special Offer £14

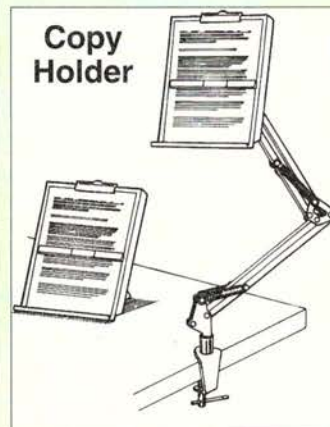
User Port Splitter Unit



Gone are the days when you had to plug and unplug devices from the User Port. This extremely useful little device allows two units to be connected to the User Port simultaneously, and select between them simply by toggling a switch. This device is particularly useful for those people using Quest Mouse and the Watford Video Digitiser or any similar combination

Excellent Value at £22

Copy Holder



Whether you want to type in your latest program or the draft of a new trilogy, Watford's manuscript holders are superb for holding your paper at the ideal height and angle to allow you to read and type in ease and comfort.

Available in 2 full A4 versions, desk resting and shelf clamping. Paper is held firmly by means of a plastic retaining ruler and a clip grip.

Desk Top £8

Angle poise £12

NEW Copy holders as above but with a battery operated, remote controlled cursor/ruler. (By hand or foot pedal.) (Batteries 2 x AA not included.)

Desk Top £15

Angle poise £20



Credit Card 24 Hour
Ansaphone Hot Lines
0582 48 77 77 or
0923 250234/233383



TEX EPROM ERASERS

EPROMs need careful treatment if they are to survive their expected lifetime. Over erasure of EPROMs very rapidly turns them into ROMs! The TEX erasers operate following the manufacturers specifications to give the maximum possible working life by not erasing too fast.

- **ERASER EB** - Standard version erases up to 16 chips. **£34**
- **ERASER GT** - Deluxe version erases up to 18 chips. Has automatic safety cut-off to switch off the UV lamp when opened. **£36**
- Spare UV tubes. **£12**

ROM Extraction Tool

This extremely useful tool allows you trouble free chip insertion and removal from your computer by distributing the removal force over the whole body of any 24 or 28 pin chip. **£2**

Metal Chip Extractor **£3**

Servisol Foam Cleaner

This king size multipurpose foam cleaner spray is ideal for cleaning Keyboard, Monitor, Disc Drive & Computer furniture surfaces. **£2.50**

Antistatic Aerosol Spray

Ideal for cleaning and preventing static build-up on TV/Monitor Screens. **£2.50**

Aerosol Dust Spray

Ideal for removing dust & dirt from Keyboard & similar inaccessible spaces. **£3**

OFFICE MASTER

- CASHBOOK • FINAL ACCOUNTS
- MAILIST • EASILEDGER -
- INVOICES & STATEMENT

All this for only **£21 (Disc)**

OFFICE MATE

- DATABASE • SPREADSHEET
- BEEBLOT

Only **£10 (Disc)**

Spares for BBC Micro

UHF Modulator	£4
Speaker	£3;
Speaker Grill	£1
Keyswitches	£1
16MHz Crystal	£2
17.734 MHz Crystal	£2
32.768MHz Crystal	£2
Replacement 17 way Flexible Keyboard Connector	£4
BBC Master Power Supply	£59
BBC Master Keyboard	£62
BBC Master Casing	£49
Refurbished BBC B Spares	
BBC B Casing	£19
Clear Perspex Keystrip Holder	£3
BBC B Keyboard	£35
BBC B Power Supply	£42

BOOKS (No VAT on Books)

15 Hr Wordprocessing BBC/View	£6.95
15 Hr Wordprocessing BBC/WW & WW+	£6.95
30 Hour BASIC (BBC Micro)	£12.95
1st Word Plus - Mastering	£13.95
1st Word Plus Rel. 2 Manual	£10.00
A3000 Technical Reference Manual	£29.00
Acorn DTP A Guide to	£17.00
Advanced User Guide for BBC	£10.95
Archimedes 1st Step - Beginners Guide	£9.95
Archimedes Assembly Language	£14.95
Archimedes Basic V Guide	£9.95
Archimedes BBC Basic Guide	£20
Archimedes DTP Manual	£10.00
Archimedes Operating System	£14.95
Archimedes Risc-Os Programmers	
Reference Manual	£79.00
Assembly Language Quick Ref.	£21.95
BASIC 2 - User Guide	£2
BBC Micro - Within the	£11.95
BBC B Micro User Guide	£15
BCPL User Guide	£9
Budget DTP on the Archimedes	£12.95
C Big Red Book of	£8.95
C - A Dabhand Guide (Archi)	£14.95
C - A Dabhand Guide to	£14.95
C Programming Lang. 2nd Edition	£24.95
COMAL - Introduction to	£9.50
Deutsch Direkt! (Book only)	£5.95
DISC FILING SYSTEM (DFS)	
Operating Manual for BBC	£6.95
FORTH on the BBC Micro	£9.95
ISO-PASCAL Reference Manual	£9.95
Master 512 Guide - Dabs Press	£9.95
Master Operating System	£12.95
Master Reference Manual Part 1	£14
Master Reference Manual Part 2	£14
Master Reference Manual - Advanced	£14
MINI OFFICE II - A Dabhand Guide	£9.95
Mouse User Guide to BBC Micro -	
the Complete	£5.95
Example Programs on Disc for above	£4.95
PASCAL Programming	£10.95
Risc OS Style Guide	£9.95
RISC Technical Manual 260 pg	£14.95
Understanding Interword -	
A Beginners Guide	£4.95
View 3.0 User Guide	£10
View Guide (View 2.1)	£5.00
View, Viewsheet & Viewstore - Mastering	£12.95
VIEW Dabhand Guide	£12.95
Viewsheet User Guide	£10
Viewstore User Guide	£10
Z88 - A Dabhand Guide	£14.95
Z88 Computing	£9.95
Z88 Magic	£14.95

BOOKS for IBM PC & Compatibles

386/486 PC Power User Guide	£19.95
8086/8088 Ass. Language Quick Ref	£8.45
8086/8088 Programming the	£17.95
Accountancy software in Business - Using	£14.95
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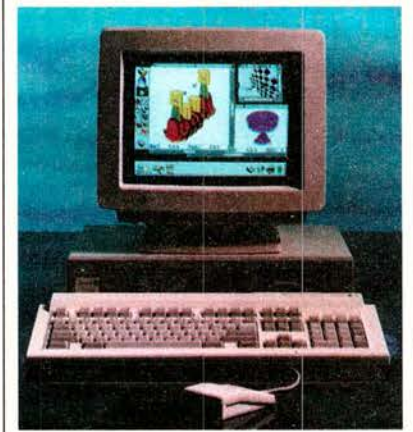
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Hitting the

John Allen takes a look at Impact
– a database with a difference

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IMPECT is not a full bells and whistles database package. It only uses the system font, has no relational abilities, cannot be used to store pictures or sound samples, and cannot directly produce reports on the data it contains.

But before this degenerates into a negative review, Impact is cheap, easy to use and does contain the facilities that most users require.

It is distributed in an unusual way too. A demonstration version is freely available as public domain software and can be converted into a fully working package by a phone call to Circle Software.

In exchange for a credit card number they supply a security code which unlocks the program and they send you a full manual in the post. It's a little like shareware but without the trust.

Creating a database

A new database can be set up with amazing speed, making full use of the capabilities of Risc OS. Select Create from the Impact iconbar menu and you are presented with two windows: One contains all the tools required to create a card layout in the other.

Each field can be one of six types: Money, date, floating point number, integer number, text or flag. To create a field in the database the appropriate field type box is dragged from the tools window and placed in the required position in the card layout window.

The size of each box can be changed by dragging any of the borders while holding Adjust. Any explanatory text which is wanted on every card, like a name for the field, can be typed into the Legend box and dragged to the required

position. A field can be named and fine-tuned by clicking with Menu. Then all that is required is to type the database name in the appropriate box and click on OK.

This is the simplest creation method I've come across in a Risc OS database – it is totally intuitive and completed in seconds. However, it's essential that a database is created correctly before data is entered as it isn't possible to add or delete fields later, although the physical layout of the card can be altered.

To add a field you'd have to create a new database and transfer the data. This constraint is shared by many other databases, although not by the similarly priced Junior Database from Iota, currently enjoying a new lease of life as the Desktop Database supplied with the A4000 Home Office machines.

Viewing and editing

Once created, cards can be viewed and edited via the Edit database window, which is accessed by clicking on the Impact icon. Clicking Menu over the Database box supplies a list of available databases. It is possible to search any single field of all cards to find a match for a string or number.

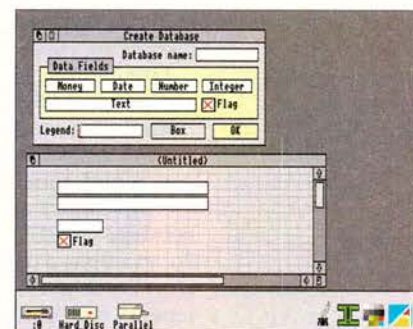
A database can be as big as the disk available for its storage. In fact a database is a directory containing a collection of files. By default this directory is created within the

application itself which is fine for a small database, or if Impact is on a hard disk and you don't mind keeping the data there also.

Otherwise it is possible to copy the directory elsewhere, but to load it into

Impact you will have to drag it to the Database box in the Edit window.

This is not very neat, as you can't double-click on the directory to load it. Perhaps it would be better if the directory was created as an application, like an Impression document.



● Creating a database



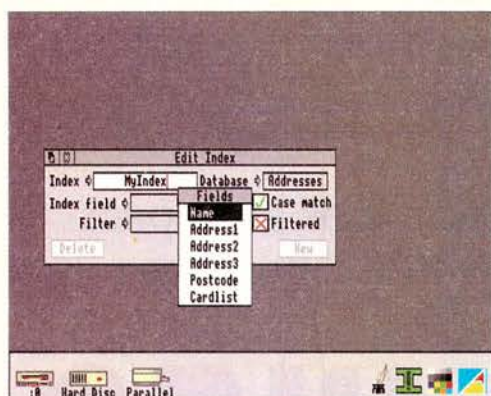
● The edit window

Indexes and filters

As you'd expect it is possible to arrange your database in a particular order. However, that order cannot be used when browsing in the Edit window, it only governs the order in which records are exported to other Risc OS applications. The only way to browse through indexed records is in the Merge window. ➤

PD Impact

The public domain version of Impact can be found on this month's subscription disk. See page 35 for details on how to subscribe to Acorn Computing.



● Defining an index

- Indexes are created very simply by selecting Index from the iconbar Edit menu. Except for entering a name for the index, everything else is selected from menus by the mouse.

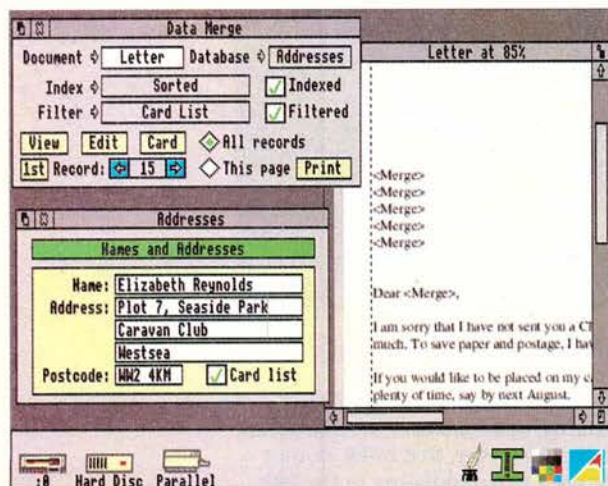
Filters define which records are selected from a database. In Impact they can be used to govern which cards are displayed as well as which records are exported.

Like indexes, filters are set up very easily from a Filter window, selected from the iconbar Edit menu. There are two types: Simple filters and compound ones.

Simple filters are comparisons between a field and an item of data. For example, a database of members of a club might have a field for the renewal date of the member's subscription.

A filter can be set up which selects those members whose renewal date is before the end of the next month, by giving the date in a month's time as the test data and selecting *Less than* as the test. This filter can then select records for a subscription reminder letter.

These simple filters can be combined to form a powerful tool



● Merging data

to select cards. To continue with the example above, if we don't want to send letters to members who are over 18, a second simple filter can be defined of those people who are

Database terminology

Most databases are arranged rather like a card index. Each object, such as an individual person, is known as a record or card – the equivalent of a single card in a card index. A single item of data on the object, maybe the phone number of the individual, is known as a field.

So each record of a database of people might have fields of their name, address and telephone number.

Mail-merging is the process whereby data from a database is merged into a wordprocessor document. The best known example of a mail merged document are the personalised direct mail letters we all receive from time to time.

under 18. The two filters can be combined so that only members who are in both filtered groups get the reminder.

Exporting Data

Impact provides two ways of exporting data to other applications. It can save a file in CSV form – that is with each field separated by commas and each record separated by a line feed, or it can directly control Impression to merge data into an Impression document.

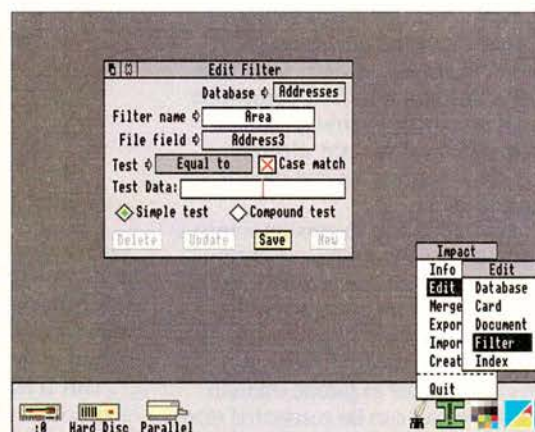
Clearly using Computer Concept's Impulse mechanism to link to Impression is best – if you own Impression. Impact allows easy control of this process unlike Squirrel, for example, where it is necessary to first produce a file of database data to be merged. Impact gives you complete control of the direct memory transfer of data.

Without Impression there is no real problem, CSV files are a common way of transferring data between applications. A CSV file can be used as data for a PipeDream mail-merge, or as data for 1st Mail to merge with a 1st Word Plus document, although in this case you would have to change the filetype to *text* before 1st Mail will accept it.

Suppose the filepath of the CSV file is *ADFS::0.\$Fred*. Pressing the F12 key and typing:

```
SetType ADFS::0.$Fred Text
```

followed by two presses of the Return key, will change the filetype from CSV to text, but the data will still be the same. This is a problem with 1st Mail being a little old-fashioned, not a problem with Impact. Using Risc OS 3 there's the menu option to change the filetype.



● Defining a simple filter

Both of these mechanisms are provided in lieu of a report generator but they cover the majority of facilities of one.

It is not possible to do any arithmetic on any of the fields within Impact. For example a unit price cannot be multiplied by the number of items to calculate the cost of an order. One way around this would be to export a CSV file to a spreadsheet.

Summing up

Like everything, you get what you pay for. Impact is astoundingly easy to use and provides the mechanisms needed for the majority of applications. Not being able to index the Edit window browse display is its main minus point.

It does make extensive use of context-dependent menus, which are not common in Risc OS applications but they are logical and make the whole package easier to use.

If you are intending to use a text database at home, or you are keeping membership records, Impact is probably ideal for you. It is less well suited to business users who will expect a report generator and relational capabilities. As the demonstration version is in the public domain, it is well worth trying.

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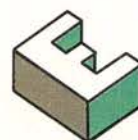
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The plot thickens

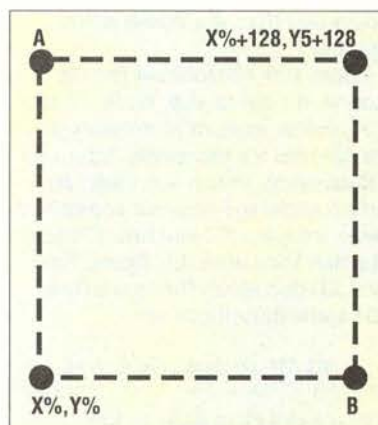
Mike Goldberg delves into simple sprite plotting

THERE is no doubt about it, all users of Acorn 32-bit machines are very fortunate people. How easy it is to take for granted the in-built desktop window system and the multi-tasking, to say nothing of the processing speed.

With all that power and an ability to display 256 colours on screen do we really need 24-bit graphics and a palette the size of Wembley stadium? Bigger does not mean better here or *the more the merrier* – in fact there's every colour you are ever going to need to recreate those of the visible spectrum.

Just like in the physical world where it is necessary to mix several colours to achieve the desired tint, the digital world provides analogous facilities like dithering for instance. All that and built in sprites and sprite Editor, namely !Paint. Armed with all that let's look at how simple it is to plot these sprites from where it matters – a Basic listing.

Before using !Paint to create a sprite we'll make one of our own from simple Basic commands. The listing *Ball* demonstrates how



● Defining the grab area

anything on the screen can be grabbed and made into a sprite.

These sprites use an area of memory already set by the computer and there are various ways of altering the amount of space required – use either the Task Manager from desktop or type in *CONFIGURE spritesize 32k after pressing F12, for example.

Lines 50-100 use the CIRCLE FILL

command to draw a red ball with a white highlight which is going to be our sprite. Line 130 moves the graphics pointer to the bottom left corner of the image and line 140 sets a second pointer position at the top right of the image. The diagram (left) shows the how and what area will be grabbed while line 150 does the grabbing.

```
VDU23,27,1,0|
|             |
| Sprite number zero (0-255)
| Get sprite
```

This VDU command is equivalent to *SGET followed by the sprite number so line 150 could be:

```
*SGET 0
```

With the * commands you can give the sprites names instead of numbers for instance:

```
*SGET ball
```

but I find it is easier to manipulate numeric variables rather than strings and using a VDU command is often more versatile if less readable.

Line 180 the 0 after the 27 chooses a sprite – not really necessary here as having just got the sprite it is in fact the one currently selected but nevertheless it is good practice – and line 190 plots it. The plot codes &E8 to &EF act on sprites like all the plot actions and the remaining two parameters are the sprites X and Y screen position.

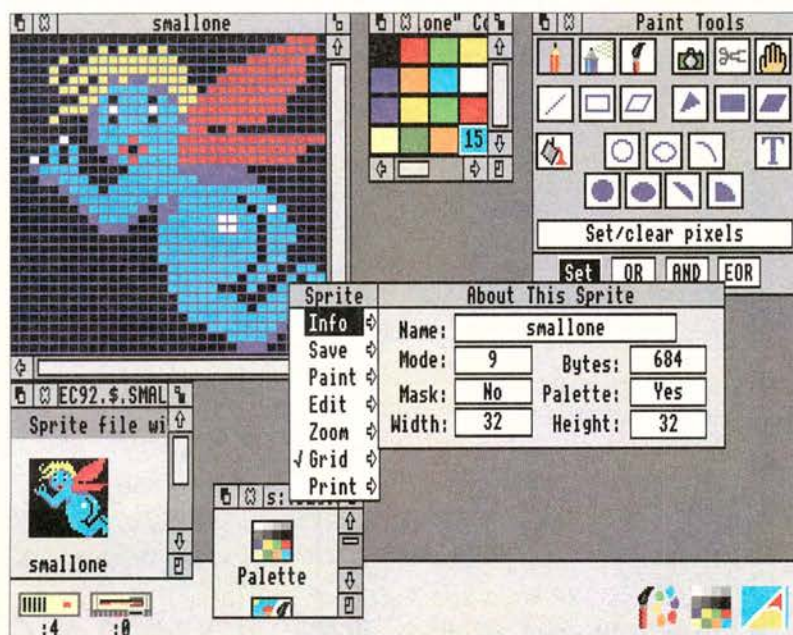
So what we have done is drawn an image on screen and captured it as a sprite and replotted it elsewhere on the screen as proof that we have grabbed it correctly. Right, hands up those of you who couldn't get the program to work?

Well it could be that you have your machine configured whereby there is no memory set aside for system sprites on power up –



Mike Goldberg is a professional illustrator who's been creating games for the BBC Micro and more lately, the Archimedes since 1982 – he was one of the Ms in the immensely successful games company MRM.

He has written many of the best type-in games for *The Micro User* and recently created *Dream Quest* for the Arc. He still owns an Electron and two BBC Micros as well as a big cat.



● Create your own sprite – or get the subscription disk



allocate at least 8k now – which is why having learned all about system sprites it comes as a bit of a disappointment to learn that it is inadvisable to use them.



By all means use them for yourself but do not expect everything you create on your own machine to work on everyone else's – a problem not just confined to sprites as all Arc owners know too well.

Consider carefully then whether you wish to continue

learning the other system sprite related commands – like *SSAVE and *SLOAD – as explained in the User Guide or learning how to create memory space for your own sprites that everyone can use.

Listing II, DrawIt, is the answer to just about all the queries I had regarding plotting my own sprites and when you remove the REMs and empty lines there's hardly anything to it.

Let's say, just for example, you've created a Mode 9 sprite in !Paint called *SmallOne* and saved it to a spritefile called *SmallFile* on an ADFS disk titled *Dec92* in the default directory \$.

Now press f12, type in Basic, press Return and run the program. After the usual setting of screen mode and what have you, the first thing to do is load in the sprite(s) you have made – look at line 80:

```
80 sprite$ = "ADFS::DEC92.$SMALLFILE"
```

Right, *sprite\$* is just the name we are giving to the file that we want information about. The rest is straightforward too, as long as the punctuation/syntax is observed:

Open quotation marks followed by ADFS which is the disk filing system followed by two colons. Then the name of the disk, a full stop, the dollar default directory the file is in, followed by another fullstop and lastly the name of the file containing the sprite(s) close quotation marks.

Sounds worse than it looks or actually is but care taken here will save you endless problems later as I

● Getting a sprite on the screen

```
SYS "OS_SpriteOp",256+34,area%,"SMALLONE",X%,Y%,howplotted%
```

0 overprints
X,Y coordinates
sprite name
plot sprite at user coordinates

found that, unlike *Strike it Lucky*, punching the monitor has an altogether undesirable effect on the screen. This string can get very long indeed if files are buried in several directories when the filepath name resembles that of a Welsh railway station.

Lines 100-120 looks at the file and works out its size, *size%*, so that the correct amount of memory can be reserved for the sprites. Line 160 DIMensions, that is sets aside, an area (*area%*) the required amount of bytes long (*size%*) and line 170 lets the first byte store this figure. Next line 210 initialises the area to load the sprite definitions to:

```
SYS "OS_SpriteOp",256+9,area%
```

SYS is a call from Basic to the operating system and the string following it tells us which part of the system that is being accessed. Get used to the 256+9 business – if you add the figures together you will obscure which command you

are using – it's easier to remember 9 as the initialising bit rather than 265. Line 250:

```
SYS "OS_SpriteOp",256+10,area%,sprite$
```

loads the sprite definitions to the area allocated. That's the 10 after the 256 we are interested in and note the *sprite\$* filename pointer at the end.

O.K. we're nearly done, lines 270-280 are going to be the sprites x y coordinates and line 290 is how we plot the sprite to the screen which for the most part acts like the old GCOL first parameter. Now let's plot the sprite (see above) – yippee!

That's it! Printed quick enough to rule out nearly all need for machine code and it can be printed even quicker than this. Next month we will see how easy that is along with masks and other easy to use sprite operations that have been previously difficult to lay your finger on – now you know where to look!

There's every colour you are ever going to need to recreate those of the visible spectrum

```
10 REM> BALL
20 REM Using the System Sprites
30 MODE9
40 OFF
50 X%=640:Y%=512
60 radius%=64
70 GCOL1
80 CIRCLEFILL X%+radius%,Y%+radius%,radius%
90 GCOL7
100 CIRCLEFILL X%+radius%+32,Y%+radius%+32,16
110
```

```
120 :REM Grab it!
130 MOVEX%,Y%
140 MOVEX%+128,Y%+128
150 VDU23,27,1,0| :REM Grabs Sprite number 0
160
170 :REM Re-plot it (but choose sprite number first)
180 VDU23,27,0,0| :REM Chooses Sprite number 0...
190 PLOT&E,128,164 :REM ...and now plots it (PLOT nos &E8 to &EF)
```

```
10 REM > DRAWIT
20 MODE9
30 OFF
40 COLOUR132:CLS
50
60 REM Load in the Spritefile
70
80 sprites$="ADFS::DEC92.$SMALLFILE"
90
100 file%=OPENIN(sprites$)
110 size%=EXT#file%+64
120 CLOSE#file%
130
140 REM Dimension an AREA the SIZE of the file to store sprites in
150
160 DIM area% size%
170 area%!0=size%
180
190 REM Initialise area to load the sprite definitions to
```

```
200
210 SYS "OS_SpriteOp",256+9,area%
220
230 REM Now load the sprite definitions to this area
240
250 SYS "OS_SpriteOp",256+10,area%,sprites$
260
270 X%=640
280 Y%=512
290 howplotted%=0
300
310 REM And Hasta La Vista plot your sprite baby!
320
330 SYS "OS_SpriteOp",256+34,area%,"SMALLONE",X%,Y%,howplotted%
340
350 END
```




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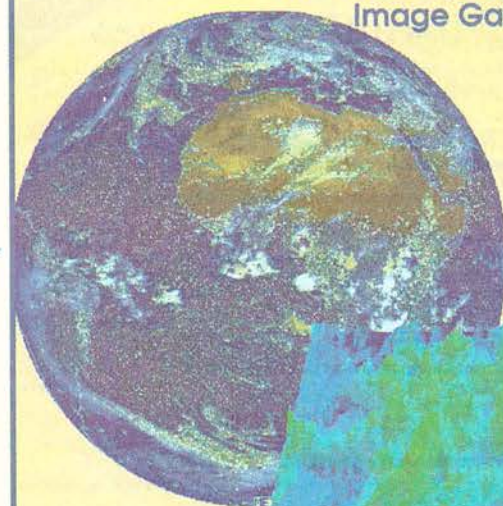
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Common sensing

Mike Cook connects up to Lego building blocks

ONE of the most fascinating aspects of computing, as far as I am concerned, is when they reach out and extend their influence into the material world. Not just producing words or pictures on a screen but causing things to move and react.

A major problem with this type of computing is that the animated models themselves are difficult to make.

This is where Lego can be very useful for a variety of projects. Technic Lego is specifically designed for this type of model and I want to look at how we can control these models using our computer.

There are two types of Technic Lego: One you see in the High Street toy shops and the other available mainly to education users. The parts themselves are interchangeable but there are a few electrical differences.

Motor voltages

The first is the voltage of the motors. The educational system uses 4.5 volts whereas the High Street system uses 9. This does not present us with too much trouble as there is little difference in driving the two provided we go about it correctly.

I covered motor control in great detail in the April '91 Body Building article – using an LM18293 you can get bi-directional control. Figure 1 shows a circuit that can be used to drive two motors, and with it you can turn both types of motors on and off.

The only difference is that you have to have the correct voltage motor supply. Although the motors are said to be 4.5 volts they will work very happily on 5.

The education set, as well as motors, has a light bulb brick. This contains a filament bulb and coloured transparent bricks can be put in front of them. They are available in red, green and yellow – ideal for a traffic light project.

These can be driven in exactly the same way as the 4.5 volt motor,

although there is not as yet any such thing as a bidirectional filament lamp. You can, however, get bi-directional LEDs.

There are two LEDs in the one package, a red and a green. If you pass a current in one direction it will shine red and the other it will shine green. However if you feed it with an alternating current both red and green diodes will turn on and it will shine yellow.

As LEDs only take a small current, using the motor control circuit is a bit of overkill but it will still work. However, a more economical circuit would be to use two open collector inverters like the 74LS06. As you get six inverters in a package this can be very economical. A suitable circuit is shown in Figure 11.

The big difference however between the two Lego systems is in terms of sensors. The High Street system has none at all, which means that any system of control is what is known as open loop. The command computer sold with the top of the range High Street system is an open loop control system

programmed in a closed loop.

Open loop control means that when you want any movement you turn on a motor for a fixed time and then turn it off. You have no way of knowing if the movement is too long or too short.

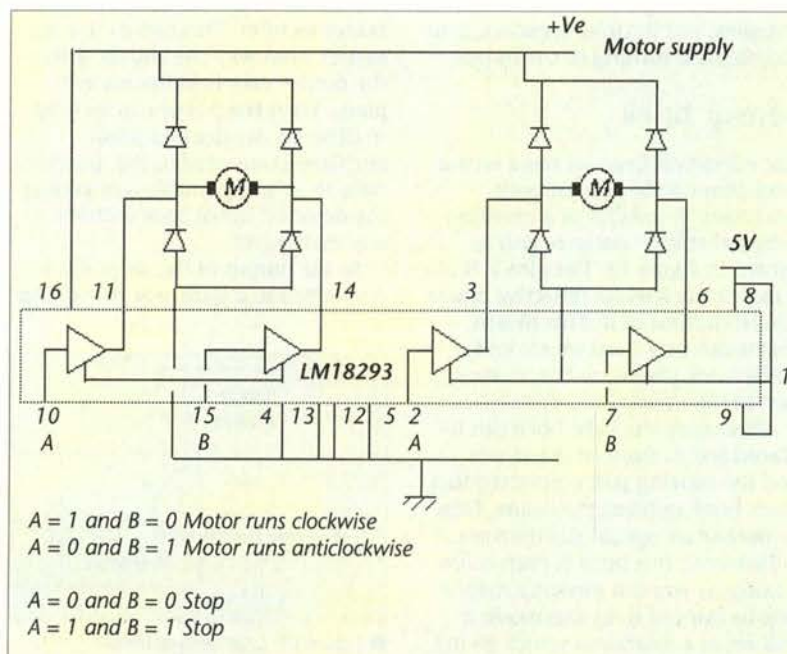
These systems are programmed under a closed loop system. A switch is pressed until the operator sees the model is in the correct position and then the switch is released. The operator is closing the loop – the eyes are a positional detector and feed back information to release the switch.

Never the same

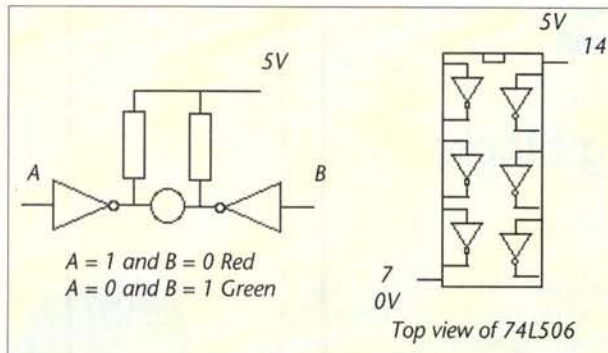
What the console does is remember the length of time the switch was pressed and it replays that along with the other switch pushes. If you have ever played with such a system you will know that the movement on replay is not exactly what was originally produced because the loading and friction encountered along with the motor



Mike Cook is a senior lecturer in Maths and Physics at Manchester Polytechnic. He has written over 100 articles and is the only person to have had something published in every issue of *The Micro User/Acorn Computing*



● Figure 1:
Bi-directional
motor control



● Figure II:
Bi-directional
LED drive

start up time is never the same twice.

In a closed loop system some form of monitoring ensures that the correct amount of movement has taken place before the motor is switched on. You can either monitor the motor turning or detect when the object being driven has reached the correct point. Each method has its merits.

Monitoring the arrival of something usually involves a fixed sensor. This is simple to control but inflexible as the sensor can only be placed in a single position. A more complex, but flexible, approach is to monitor the turning of the motor.

Sensor brick

The education Lego set has a sensor brick that can be used in both situations. It consists of a reflective infra-red emitter detector pair as shown in Figure III. The idea is that it can detect a white reflective object placed in front of it. This means that it can be a fixed sensor and a white brick placed on the moving part of the model.

Alternately the light brick can be placed just in front of the sensor and the moving part connected to a black brick to break the beam. This is just like an optical slot detector.

However, this brick is even more flexible as you can mount a striped disc in front of it. In this mode it will act as a rotational sensor giving

several pulses per rotation. One side of the disc produces four pulses per revolution and the other, eight.

When I first laid my hands on this brick I was puzzled because it only had two wires going to it and those could be connected any way round you liked. Initially I thought it should have at least three wires, two for the power and one to signal it had detected something.

Correct polarity

Figure IV shows the block diagram of my design for a sensor brick which is probably the way the Lego one works. The first problem is that you have to feed infra-red emitters and detectors with the correct

sensor's supply. This means that when reflected light is detected the brick draws more current and we can detect this at the other end and so fulfil the design criteria.

Figure V shows the circuit you would need to drive such a sensor brick and – surprise, surprise – it also works with the Lego brick. What we have here is basically a comparator, and the sensor is connected to 5 volts through a 220R resistor.

This provides current limitation for the emitter and also acts as a current sensor. As more current is drawn by the brick the voltage across this resistor increases and the comparator triggers giving a logic level indication. This can then be input to the computer in the

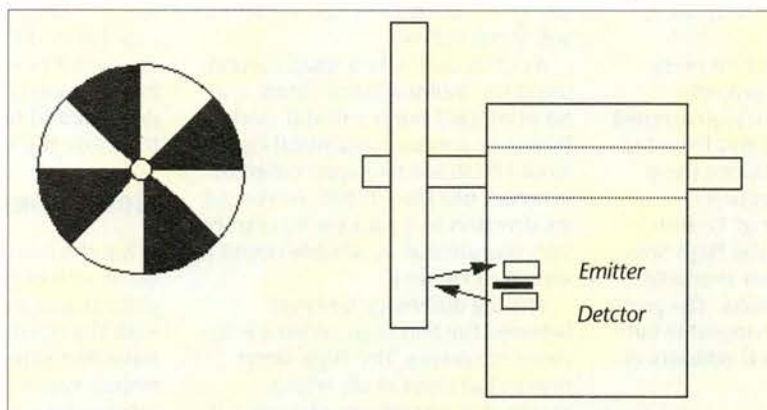
conventional way.

The comparator I used is the low-cost LM339 although any type will work. The non-inverting input is fed by two resistors that define the threshold level – if you are using all the comparators you don't need to repeat these

resistors. In other words you can connect pins 5, 7, 9, and 11 together to one pair of resistors.

You can then get the software to count the pulses to determine how far the motor has turned. This can give you quite an accurate indication of the position of the model. However, this is only true as long as the software can keep up with counting the pulses. A Basic program may have to be written in machine code to cope.

If you just want an indication of the speed of the motor rather than

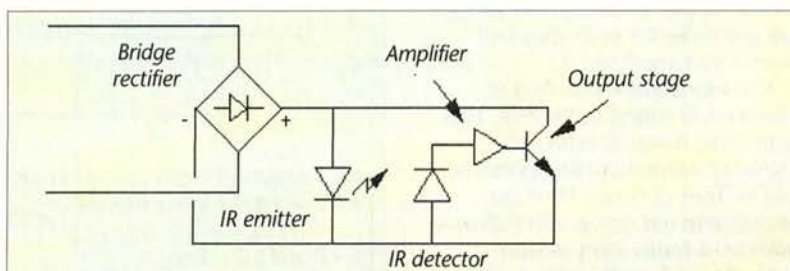


● Figure III: Lego sensor block

polarity and the brick can be connected any way round.

So the first part of the circuit is a bridge rectifier. This means that no matter what way the voltage arrives the diodes steer it to the correct place. Then the power can be used to drive an emitter and small amplifier connected to the detector. Now there is the problem of getting the detected signal back without any extra wires.

So the output of the amplifier is connected to a transistor across the



● Figure III: Lego sensor block

In a closed loop system some form of monitoring ensures that the correct amount of movement has taken place before the motor is switched on.

counting each pulse you can use the circuit in Figure VI. This takes the square waves from the sensor and passes them through a monostable to produce a fixed width pulse in response to every rising edge it receives.

Waveforms

Figure VII shows the waveforms produced for a fast and slow motor. Note that the average of a square wave is 50 per cent no matter what the frequency, because it spends the same time in the high and low state. The monostable output however has a fixed high time, the faster the input signal the longer it stays high.

This pulse train is smoothed by a resistor and capacitor into a DC voltage that can be read on the analogue input of the computer. By using a diode and resistor across the capacitor the response time of this smoothing circuit can be controlled.

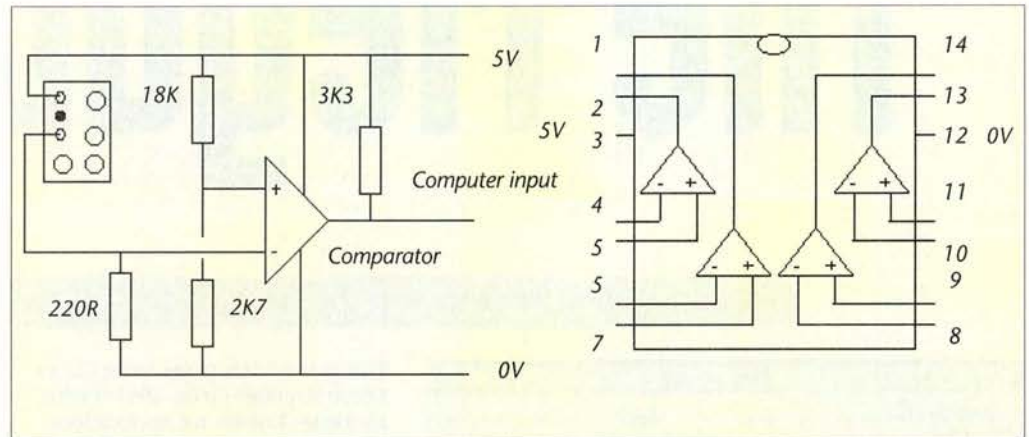
The components marked with a * can be changed depending on the speed of the motor. The resistor across pins 14 and 11 of the monostable should be increased if there is not enough output voltage due to the motor turning slower.

The capacitor across the resistor should be decreased if a more rapid response to the dropping in speed is required and the resistor connected to the diode should be reduced if a more rapid response to increasing speed is necessary.

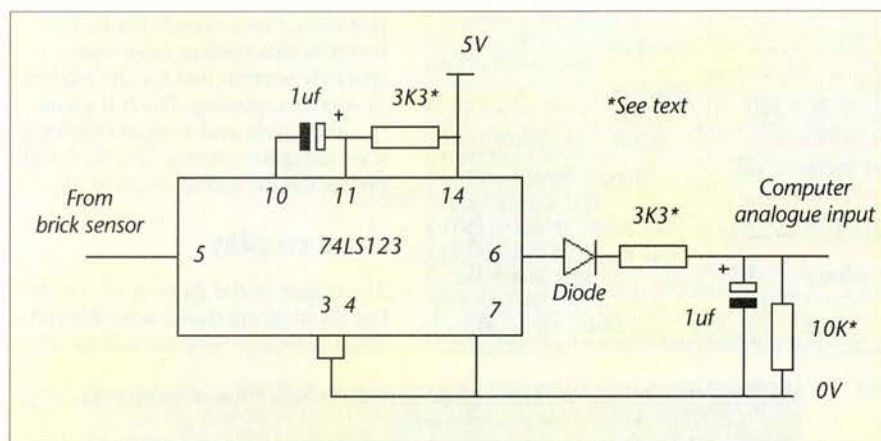
Note that with increasing response time you will get increasing ripple on the output voltage and so the measured voltage will be less accurate and more erratic. A compromise position can usually be reached for any situation.

As we have not covered any specific application this month a kit of parts would not really be appropriate especially as all the components are readily available. For those of you who only have the High Street version of Technic Lego the sensor bricks and striped discs can be obtained as spares direct from Lego UK. Their address is Ruthin Road, Wrexham, Clwyd LL13 7YQ.

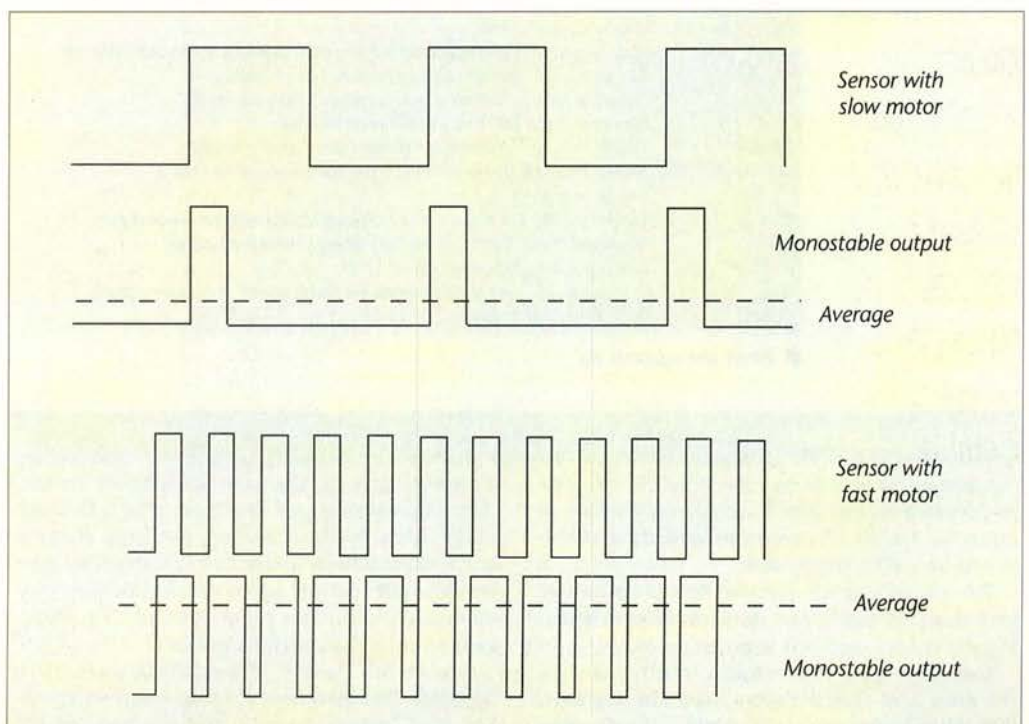
● Well that about wraps it up, which, with Christmas coming, might just make an ideal present. Merry Christmas.



● Figure V: Circuit of Lego brick sensor interface and a pinout of LM339 looking from the top



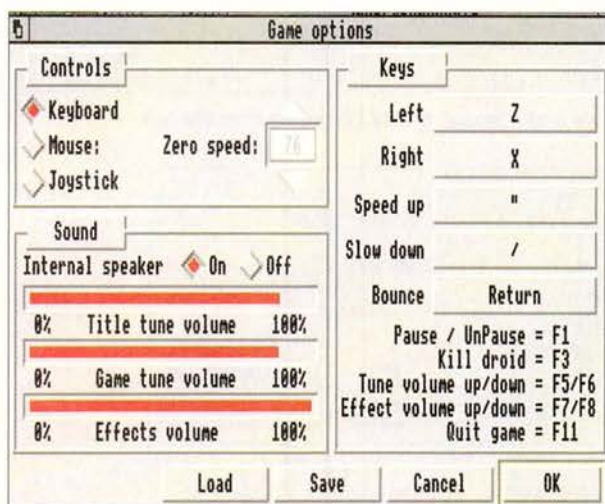
● Figure VI: Analogue speed detector



● Figure VII: The waveforms from the speed detector circuit

The Megadisk

Fervour: Keep your droid on the straight and narrow



● Extensive game options are available

Cyan	Increases the number of bounce credits you have. These are needed if you want to cause the droid to jump
Magenta	Reverses your controls and the effects of red, green blue and yellow areas
Light pink	Increases the number of droids you have left
Mauve	Increases the time remaining to complete the level in
Pastel green	Is simply a score bonus
Brown	Stops you in your tracks, but not left and right movement – so don't skid off
Purple	Sets your speed to a specific value which changes each level
Beige	Is an area with no friction so you cannot control your droid's direction. If you get stuck you will need to jump
White	Causes your droid to bounce without using a bounce credit
Yellow	Moves you right, but be warned, if you have reversed controls it will move you left
Blue	Moves you left, but if you have reversed controls it will move you right
Green	Slows you down. Don't stop on here unless you have a bounce credit, you have been warned!
Red	Speeds you up. Keep the decelerate key down to stay at the same speed
Grey	Does absolutely nothing

● What the squares do

Getting started

The programs on this disk are stored in a highly compressed format which sometimes enables as much as 1.6Mb of programs and data to be stored on a 800k floppy disk

The procedure for running the programs is very straightforward and does not require learning any special methods or techniques.

Switch on your Acorn micro, put the disk in the drive and click the drive icon. The software that unpacks the programs, ArcFS 2, loads automatically ready for use. Double-click the Acorn

Computing icon, the screen switches to the Acorn Computing logo and then, after a few seconds, back to the Desktop but now there's another window available. You can treat this new window just like any other one for viewing disk contents, you can run programs and open directories just by double-clicking them.

We recommend that you always read the !ReadMe files or access the help information via the Filer menu. See your Risc OS manuals for details.

This is the latest game from Clares Micro Supplies (0606 48511) who are better known for applications. Though when they release games they are classics.

It comes from the same stable as Interdictor and Interdictor II. The levels in this version have been specially written just for the readers of *Acorn Computing*. The full game has 100 levels and a superb Desktop level designer costing £24.99. A full review can be found on page 59.

How to play

The object of the game is to control the droid along the multi-coloured band of energy without falling off,

and collect as many of the light green blocks as possible. To run it just double-click on the Fervour icon.

On your travels you'll see different colours of blocks which can speed or hinder your progress see the panel for the effects.

Fervour uses a very sophisticated game control system all accessed from the iconbar icon Options sub-menu. You can use the keyboard to manoeuvre your droid or opt for mouse or joystick control by clicking on the relevant radio buttons. You can also alter sound, volume and speed. Both the Serial Port and RTFM joysticks are supported.

In addition a number of utilities are supplied on the disk: !MaxMem maximises the memory in the application area and !MonType enables you to switch between mode types of 50KHz and 100KHz.

On some machines you may have to increase the memory available in the module area using the Task manager. You should do so if you get a *No room in RMA* error.



● Don't jump!



● He's round the bend

THIS month we have three excellent demos on the cover disk: An exclusive interactive rendition of Fervour, and special versions of BookMaker and Sound FX Maker with certain options unavailable.

This exciting mix gives you a

top quality blocker buster of a game, an educational application which lets you make your own books and a program to bring samples to your 32-bit machine without a any additional hardware.

BookMaker: Electronic story teller

This application is an exclusive pre-release version of a new educational package from award-winning Resource (0302 340331) called BookMaker. All the options of the full version are available apart from print, notepad and save. The fonts are also limited to the system font, though normally you can access all the fonts at your disposal.

Double-click !Bookmaker to load the application on to the iconbar.

Click Menu on the BookMaker icon on the iconbar and select the configure option. If you click on any of the icons it will open the configuration options

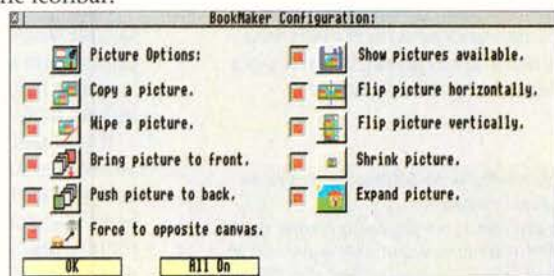
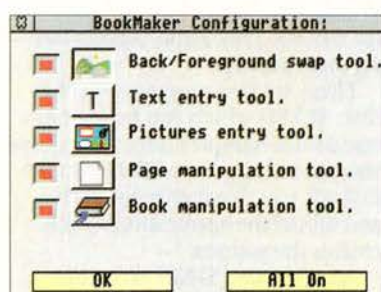
for that function, with a short description of what each item does.

To start your book, click on the BookMaker icon on the iconbar which will open a window with the master toolbar. Click on either the text or pictures icon. You can have both background and foreground pictures though you are limited to the number of sprites you can have in background mode by your computer's memory.

If you want to start with a picture, click on the disk icon. This will load the files available, clicking again will take you through all the files in the PicturBook folder.

When you have found the one you want as a backdrop drag it into the window. A backdrop will always appear in the background so if you want to modify it in any way you will need to select the background canvas from the master toolbox icon.

The title bar will show whether you are in the background or foreground mode. A backdrop is a special sprite in that nothing can be pushed behind it. To make a sprite or some text a backdrop, click on



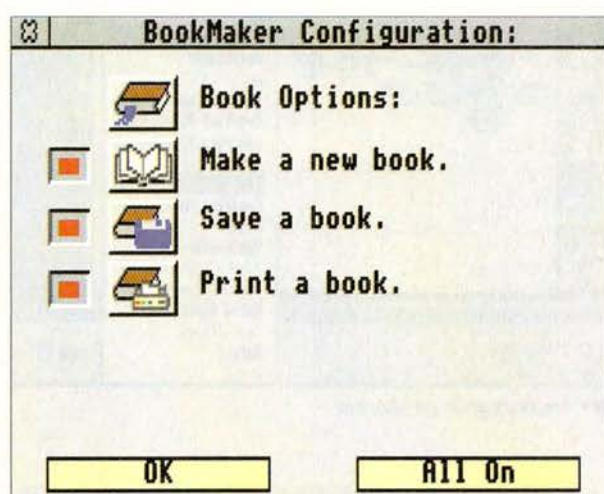
the sprite and choose *Selection=>Make BackDrop* from the menu.

To add text, simply double-click in the window where you want it to appear. This will automatically open a text window with the caret and the text selection icons. Type in your text – or drag an edit file into the text window.

You can change its appearance by clicking on the frame icon to add a speech bubble or clicking on the text change icon to alter the text colour.

To go back to the master toolbar icons, click on the top icon on the toolbar you are working on. Alternatively if you click on a picture object this will automatically open the picture entry toolbar. Text works in the same way.

Moving text or graphics around is very intuitive – just click on the text or object and drag it to its new position. You can tell which item is selected by the box surrounding it. To group objects together just click on the ones you want with the Adjust button and then move the



● The whole of BookMaker can be configured

box which now contains them all.

There are two ways of resizing a sprite or text area. First select the object you want – look out for the box – in the bottom right corner is a small box. If you drag this with the Adjust button it will change size. Alternative you can halve or double the size by clicking on the relevant icon.

As you tell your story you can add pages, delete them or copy them until you have finished your own book. The full version of BookMaker costs £49.50.

Faulty disk

The cover disks are thoroughly tested at every stage of production, but inevitably when such a large batch of disks are duplicated, one or two bad ones will slip through. If you receive a faulty disk it will be replaced free of charge. Send it with your name and address to:

Prosoft,
5 River Gardens Business Centre,
Spur Road, Feltham, Middlesex TW14 0SN.

If you damage the disk yourself, send it to the same address, but include a cheque or postal order for £1 (5.25in disk) or £1.50 (3.5in disk). If the disk has been damaged in transit, please return it to:

Europress Direct, Freepost, Ellesmere Port,
South Wirral L65 3EB.

5.25in and 3.5in disk offer for BBC Micro users

We are making a special offer available to readers of *Acorn Computing* with a BBC Micro.

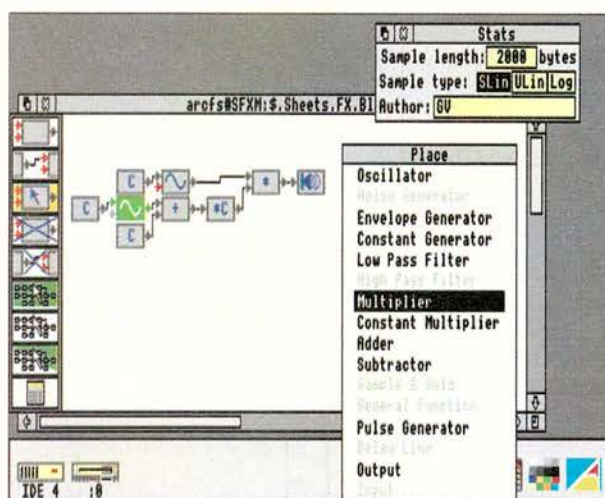
We will be happy to replace this month's *Acorn Computing* coverdisk with either a 5.25in or 3.5in BBC Micro disk. All you have to do is detach the disk in its bag and return it, together with the form below, enclosing

a 50p coin to cover part of the cost of post and packing.

Important: Please note that the replacement disk you receive will not include *Fervour*, *BookMaker* or *SFXM* as these programs are not available for the 8-bit BBC Micro.

● Offer available only within the United Kingdom

Sound FX Maker: Analogue synthesiser

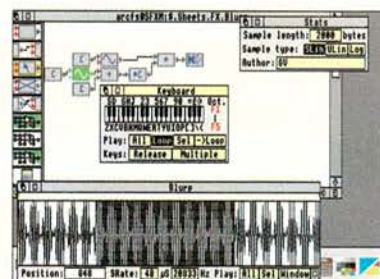


● Construct your synthesiser

In its simplest terms Sound FX Maker is a simulation of an analogue synthesiser. The new version of this product is now available from CIS (071-226 3340) for £49.95. This demo version has no save facilities.

There are two programs on the disk: SFXED which can be used as a standalone sample editor – there are sheets of examples available on the disk for you to experiment with – and SFXM the application which creates the sounds.

After loading SFXM on to the iconbar and clicking its icon you'll see the main editing windows and a Stats window which gives you information about the sample's length, type and author.



● You can play sections of samples

The main window is where you create your sheet which is a collection of objects and wires which when constructed properly will calculate a sample from it. The functions available to you are in the toolbox.

Once you have created your sample you can use the keyboard and play a tune using the sounds, add loops or just use part of a sample indeed whatever you want.

If you feel lost in the names, access the sheets already compiled and see how the effect has been created, change some of the objects and test the results – you can do no harm and there is a great feeling of achievement when you manage to create even the simplest sample.

Placing	Clicking here gives you a choice from Oscillator to Subtractor and so on which you can then position on the main window
Connection	Each object has inputs and/or outputs. Inputs are shown by arrows on the left, outputs arrows on the right. These are connected with wires and an output can only be connected with an input. To connect just click first on the start and then on the end points
Selecting	If an object is green it is selected. When selected an item can be moved. There are also icons which select all, clear the selection and swap selections
Deletion	Select first then delete
Calculation	Experiment with this one setting the Stats value to 64 and then click the calculate icon which will produce the final sample

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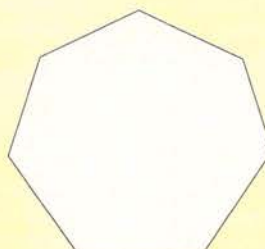
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Acorn Computing BBC disk offer, PO Box 2, Ellesmere Port, South Wirral L65 3EA

Closing date of offer is December 16, 1992. Please allow up to December 31 for delivery.

Tape your 50p coin here



1Mb machines

We had to use a shoehorn to get all the programs on to this month's cover disk – there's just 1k free. Because of the compression routines used to achieve this, owners of 1Mb machines may have difficulty initially reading the disk.

If this is the case press Control +Break – this ensures that you completely empty the module area.

Next you need to free as much memory as possible by removing any applications that may load automatically. In addition access the Task Manager and reduce the sprite and font sizes to zero. Using the Palette, change to Mode 0 and format two new disks in the usual way.

Open up the *Acorn Computing* disk as usual and drag the individual programs on to the fresh disks – this will involve disk swapping. You can then run the programs in their unpacked versions.



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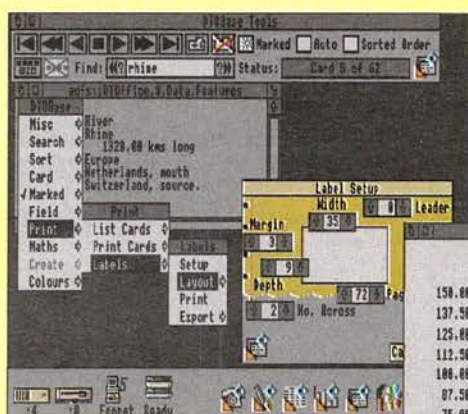
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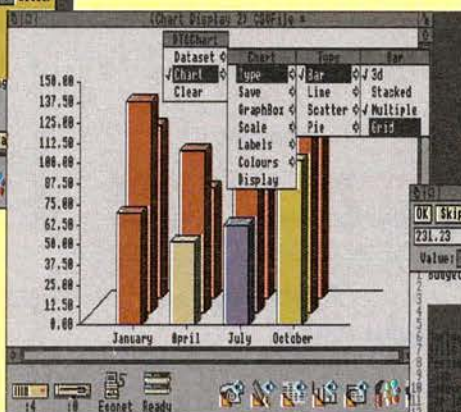
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Six great programs on your disk this month

SWIUTILS ... quicker programming

SWIUTILS is a program to allow the SoftWare Interrupt (SWI, pronounced sss-why) system on the Acorn 32-bit machines to be used more easily. The program does two things: It allows SWIs to be called from the command line and will list the SWIs supported by almost any module.

It's been tested thoroughly and only fails with the *UtilityModule*, present in rom on the machine. Because this supports so many SWI commands, the original programmers have had to use some weird techniques to get them all to work. As a result, changes to the *UtilityModule* may result in its SWIs not being totally listed.

The command **SWI* uses the following format:

```
*SWI <SWI Name> [R0 [R1 [R2 [R3 [R4 [R5 [R6 [R7]]]]]]]
```

where R0 to R7 are the values of registers 0 to 7 – not all of them have to be used. It then displays the returned values of R0-R7. For example:

```
*SWI OS_Byte 200 1
```

will disable the Escape key, and then display the contents of the regis-

ters after doing so. But it's not possible to do this:

```
*SWI OS_CLI "LOAD FRED"
```

The second command is **SWIList*. This uses the format:

```
*SWIList <Module Name>
```

and will display all the SWIs for that module, if any. An example is:

```
*SWIList Wavesynth
```

which gives all the *Wavesynth* module SWIs, actually just *Wavesynth_Load*. This is not intended to reproduce completely the operation of the Basic V SYS command although that could be done using system variables and allocating space for literal strings in the module area.

Perhaps someone might like to have a go, then you'd also need commands to allocate and deallocate blocks of memory, peek and poke those blocks and then ... you'd end up with Basic anyway.

Andrew De Quincey

Magic scroll ... the mouse drags its pointer

IF you've been playing with the new version of Draw in Risc OS 3, you'll probably have noticed its new auto-scrolling feature. During some operations the main drawing window will scroll automatically when the pointer gets close to the edges.

The program here provides similar automatic scrolling for any window on the Desktop. It really comes into its own for dragging objects around in Paint, say, because you can't use the scroll bars while you're holding down a mouse button.

To start the scroller program double-click on its icon as usual. You can check it's working correctly by opening a window with scroll bars and positioning the pointer in the window close to one of its edges. After a brief pause you should see the window beginning to scroll in that direction.

Clicking on the program's icon on the icon bar will enable or disable the scrolling effect, with the

icon adopting a greyed-out appearance when it is disabled. To remove the program completely, click Menu over its icon and then choose *Quit*.

If you choose the *Drags only* option on the menu the window will only scroll if you're holding down a mouse button which usually means some kind of dragging operation is going on.

You can control how fast the window scrolls using the *Step size* option. This leads to a writable submenu where you can type in a new speed setting. The actual scrolling speed depends upon how quickly applications can redraw their windows, so some programs may scroll faster than others with the same speed setting.

The default scrolling speed and the initial setting of the *Drags only* option are set by the variables *Step%* and *Drag%* near the start of the Basic program within the !Scroller directory.

When you move the pointer up

to the edge of a window there is a short pause before it starts to scroll. This feature is intended to prevent unwanted scrolls occurring as you move the pointer around the screen. But if the delay proves irritating you can reduce it, or remove it altogether, by changing the value of the variable *Delay%*.

You can also control how close the pointer has to get to the edge of a window before scrolling begins by altering the value of *Margin%*.

Paul Dellar

● The window scroller is fully configurable



Sizing things up ... it's growing all the time

DO you know how much of your floppy or hard disk is taken up by the various sections on it? Are your children's sub-directories bigger than your own? How do you know which bits to prune for maximum savings?

This application, called !TreeSize, will help by graphically showing the relative size of each object in a directory as a bar – red for a file and blue for a directory. The size shown for a directory includes 2,048 bytes for itself, its files and any sub-directory tree within it.

When you double-click on the !TreeSize icon, the application will run and its icon will appear on the icon bar in the usual way. You can view the contents of a directory by dragging its icon to the icon bar, or alternatively by dragging an icon from within the directory, with Shift held down. If you do this, be sure to release the mouse button before you release Shift.

You can select a root directory, either by using Shift as above or from the icon bar menu which attempts to show all filing systems present.

The processing time can be quite long as the program has to search the entire sub-directory tree within your chosen directory. If you are cataloguing the root directory of your hard disk, it may take a couple of minutes, depending on the complexity of the directory structure. You can abort the process by pressing Escape.

If you get an error message, such as *No room* it means that your directory structure is too deep and you may have to increase the amount of memory allocated to the application. See the !help file for details.

To look at a sub-directory, simply click on its name in the list on the left-hand side of the window. Following standard Risc OS practice, clicking Adjust will close the existing window, and if you click Adjust on a window's close icon, the application will open a window on the parent directory, if there is one.

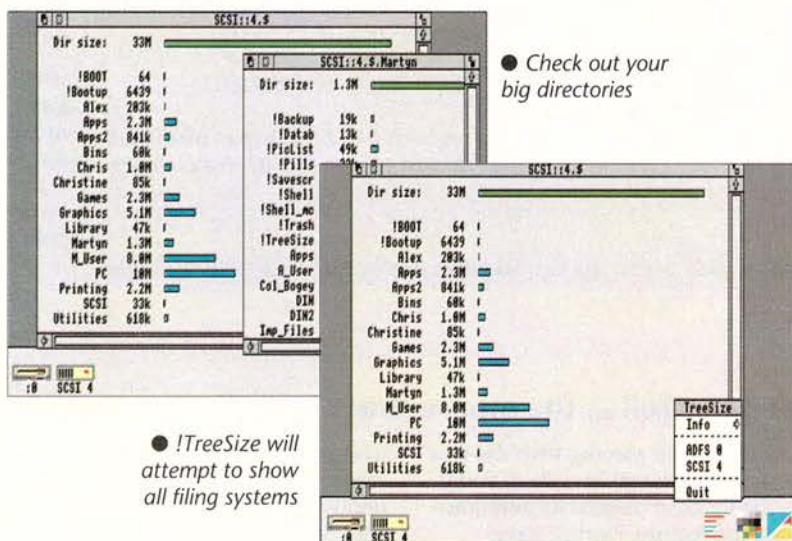
To modify the contents of a directory, click Menu over its window and select Filer. This will open a filing system window on the

directory, for you to use in the usual way.

Changing the directory contents will not cause the !TreeSize window to be updated. This is because it can be a rather long-winded process. If you want to update the window, click Menu over it again, and select Redraw. A further menu option allows you to open the parent directory without closing the one which you are looking at.

The application supports the Interactive Help routine, and will also work with ArcFS and ArcFS 2, showing the uncompressed size of the contents of an archive, though it does not appear on the icon bar menu.

Martyn Fox



Centipede ... many legged fun

THIS little game was written as an exercise in condensing Basic programs – it is only 10 lines long, or six without the REMs. The hero is a centipede, called Fuzzy for no justifiable reason.

Fuzzy is late for an important appointment and must rush through the never-ending forest of the curious multicoloured shapes. Contact is fatal, and the only happiness comes from the small blue power pills which he wants to nibble at for as long as possible.

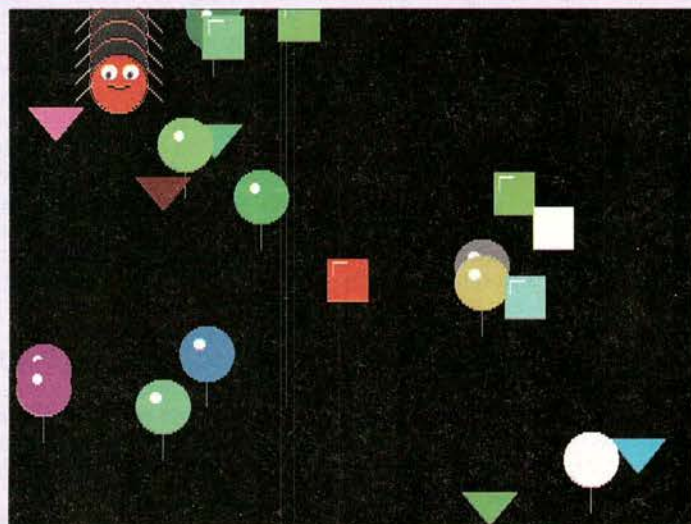
His probability of survival is zero even with your help, and Fuzzy is, as a consequence, not very happy.

Fuzzy is controlled by the Z, X, " and ? keys and there is also a Pause facility, obtained by pressing Control+Shift or Scroll-lock. Any attempt to leave the screen will result in immediate death – that's life.

Look out for the nice touches that took ages to program in: Fuzzy's eyes point in the direction he is moving. The pills make fuzzy smile, his eyes grow larger – and blink more often – and the background note rises in pitch. Also the game gradually speeds up as you play it. All this from such a concise program.

Warning: This game is very addictive, so enter the forest with plenty of time to spare.

Paul Carpenter



Noughts and crosses ... game for all micros

NOUGHTS can relieve the tedium of word-processing so this game can be run at the same time as other programs, because it is multi-tasking, and the playing window can be scaled to fit in with whatever else you may be doing.

The options window, accessed from the

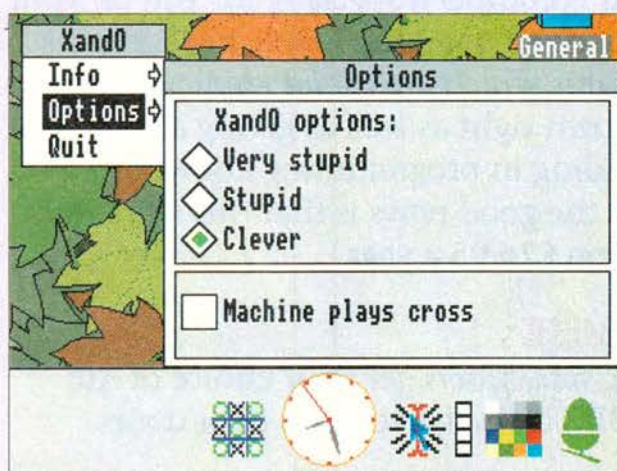
main menu, permits you to choose three levels of cleverness and whether the machine plays as a nought or a cross. Note that the machine changes sides only when the screen is redrawn at the start of a new game.

After 10 games in clever mode, the program automatically switches to stupid mode,

though it can be switched to clever or to very stupid mode, at any time. There is a way to beat the machine in clever mode when it's playing as nought, but as cross in clever mode, it is unbeatable.

See notes with the program on the disk.

Martyn Fox



● You can set the computer's cleverness level



● The results screen keeps you well informed

Duel ... double-barrelled

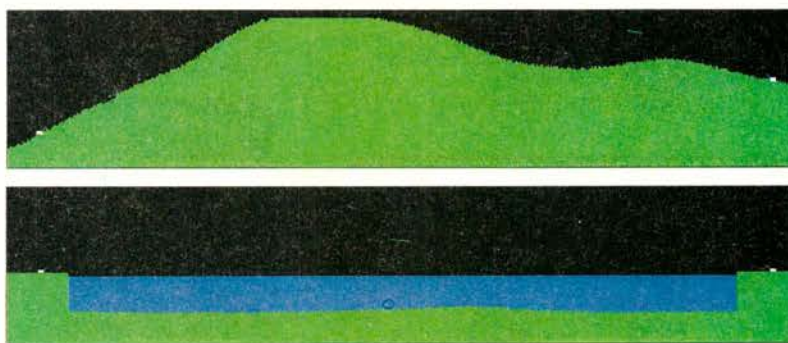
HERE's another game that's only 10 lines long – including four REMs. This time it's a violent duel to the death for two players that involves the exchange of explosive-tipped rockets across a varied sinusoidal landscape in the wind-torn mountaintops and valleys of H-Trae.

Each player owns a missile silo, with 200 personnel, but requires only eight to man the gun – any eight. The players take turns inputting velocity and angle for the projectile's trajectory.

Any hits scored kill some of the target's men. If the total is reduced to seven or less or the gun falls below sea level, the game is over and the winner is declared.

Velocity is in unspecified units, but use degrees for the angle. No error checking is done, so unrealistic speeds which sometimes embarrass my program, or negative angles, may be used. We suggest you ban these in your own games.

A new screen can be generated – after mutual consent – by pressing Escape. Pressing Escape before a screen is fully plotted will exit the



● The terrain can be bumpy...or flat

program, so to leave at any time, press Escape twice.

If you want a headache, try

loading up the main program and finding out how it works.

Paul Carpenter

32 bit reviews index...all the best

THE Acorn Computing subscription disk contains an up-to-date list of all the products for the Acorn 32-bit micros that have been reviewed in *The Micro User* and *Acorn Computing*.

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Stephen Wade

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Cursor changes your text input

marker into a solid block while *Clock* gives you an on-screen time at a glance.

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Quadcube: End of the world.

It is the year 2092 and all is well on planet Earth – as well as can be expected anyway. But researchers have discovered a number of highly radioactive rock crystals hurtling towards us from outer space.

A group of scientists have invented a nifty gadget that allows you to guide these crystals into a massive containment module for disposal, a solid mass of crystals will go critical and explode. Unfortunately there are three disadvantages to this system:

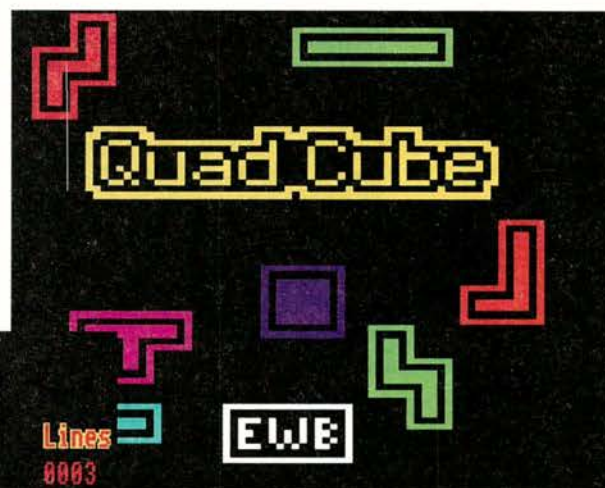
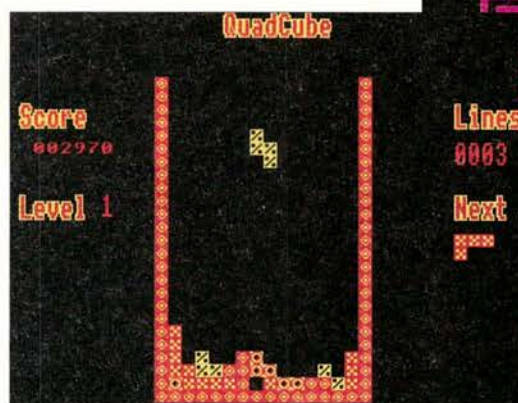
If the module is filled up the crystals spill over and render the control system inoperative. As the quantity of crystals in the module grows, the increased mass causes the incoming crystals to approach faster. The final problem is that the world – for some obscure reason – has chosen you to sit at the controls.

You have four keys for controlling the incoming crystals, and they can be rotated by pressing K or moved

left and right with J and L. Once you're satisfied with their positioning you can pull them in faster with a tractor beam activated by pressing space.

The crystals have seven configurations which appear at random and you need to pack them together as tightly as possible – try to avoid creating any gaps.

Edward Brown



● Time to save the world...again

● Crystals falling into the drop zone

Cursor: Solid as a block

WHILE editing a screen full of text, particularly in Modes 0 or 3, it's sometimes difficult to find the cursor. By poking registers 10 and 11 of the 6845 CRTC, we can easily enlarge it.

Plus we can intercept the *wrchv* – write character to screen – vector to ensure that even screen mode changes don't affect the effect.

Rather than delve deep into the realms of VDU queues to search for both VDU 22 (change mode) and a mode number we can call the code every time a character is output

because it's so short. Although this is not the most elegant solution, it executes quicker than performing loads of checks to determine when a mode change has explicitly happened.

Just CHAIN the program – called *Cursor* – and your enhanced, more visible cursor will appear and remain until Break is next pressed.

Technically, the routine is naughty as it directly pokes hardware registers. However, as Acorn no longer design new 8-bit micros this will not be any problem. Unfortunately

this direct use of the 6845 chip means that the utility is not compatible with the Electron.

As far as I am aware, there is no way of implementing such using the Video ULA instead.

The routine seems to work perfectly on the BBC Micro in most instances, although it refuses to work in View's text editing mode while functioning correctly in the command mode. In ViewSheet though, it works in both modes. Very strange.

Stephen Wade

Clock: Time and a half

WHEN using a micro it isn't difficult to become so engrossed as to lose track of time. Wouldn't it be useful to have a means of keeping tabs on time without your eyes leaving the screen?

On this month's disk is a clock that will keep time while you to continue with your work. It sits in the top right-hand corner of the screen and can be used effectively in an array of environments – from Basic to wordprocessors and spreadsheets.

The program consists of three distinct parts: First is the input routine where you are requested to enter the current time. You can press Return at each prompt if you just want a timer.

The next part redirects the event vector *evntv* to the beginning of the clock service routine and sets the system timer to call the clock routine after one second. Following this, it issues osbyte 14 with a parameter of 5 to allow trapping of the *interval timer crossing zero* event to occur.

Finally comes the section dedicated to updating the clock. The code begins by resetting the timer to cause the same event after a further second: This may seem premature

but is the best way to avoid a noticeable shift in time.

The clock is incremented by amending the Ascii values stored in the string buffer at the rear of the code. Checks are made for any digit reaching nine and the switch from 23:59/59 back to 00:00/00. Appropriate action is taken for each.

Clever use of osbyte 135 ensures that the clock appears in the top right-hand corner regardless of the screen dimensions although text windows could cause some problems.

When the routine is installed, the use of Shift+Control to stop text scrolling halts clock updating. And

cursor-copying does not work correctly. All disk operations which require the use of main memory as a buffer – *Backup or *Compact for instance – should be avoided. These overwrite the area in which the utility resides leading to your micro hanging up or the contents of your disk being corrupted.

There should be no problems whatsoever with normal load and save operations though. If in doubt as to whether a given operation is safe, either disconnect the routine using *FX 13,5 or avoid running it beforehand.

Never attempt to run the routine

twice without pressing Break in between, otherwise the routine will function incorrectly and will assume full control of the micro.

Stephen Wade

```

1560BRK
1570BRK
1580BRK
1590BRK
1600BRK
1610BRK
1620J
1630NEXT
1640PRINT "Code assembled."/"Please enter current time:-"
1650REPEAT
1660INPUT "Hour : "hour%
1670UNTIL hour%>=0 AND hour%<24
1680IF hour%<10 hour$="0"+STR$(hour%) ELSE hour$=STR$(hour%)
1690REPEAT
1700INPUT "Minute : "min%
1710UNTIL min%>=0 AND min%<60
1720IF min%<10 min$="0"+STR$(min%) ELSE min$=STR$(min%)
1730REPEAT
1740INPUT "Second : "sec%
1750UNTIL sec%>=0 AND sec%<60
1760IF sec%<10 sec$="0"+STR$(sec%) ELSE sec$=STR$(sec%)
1770PRINT "FX 13,5 to disable"
1780$string=CHR$(32)+hour$+CHR$(58)+min$+CHR$(47)+sec$+CHR$(32)
1790?counter=156
1800?counter!1&FFFFFFF
1810CALL reset

```

● Work to time with multitasking clock

Battery backed bonus

An additional, more convenient version is supplied for Master 128 users under the filename *MClock*. This reads the time automatically from the battery-backed clock instead of asking you to enter it. All the other features remain unchanged.

QCD: Getting quarts into pint pots

When using clip-art or graphic screens your disks can soon fill up causing frustrating disk-swaps and the need to buy more disks in the first place. And clip-art is available in vast quantities from PD libraries. What's needed is a way to get more on the disks.

QCD – Quick Compacter Decompacter – is a program that puts the squeeze on pictures. The compacting and decompacting is done by machine code so it's quick. The compaction power of the program is reasonable and the results are good enough to save space even with complex images.

Before you can do any compacting – or decompacting – you have to run the program QCD/Gen. This creates a new version of the machine code routine QCD tailored to your machine. If you are using a standard Model B with DFS your machine's PAGE setting is changed to &1600 because of the extra space required.

QCD/Gen may also need to be modified depending on where it is to be run from. The changes are described later.

QCD is both the loader – type *QCD to run – and it also contains the compaction/decompaction code. When run it sets PAGE to whatever it was when QCD/Gen was run then loads and runs the main program: QComDec.

The idea of this loader is that on ADFS or a network, QCD and QComDec are in the Library directory and can be got at with just *QCD.

*QCD should always be used instead of CHAIN"QComDec". But to ensure that QComDec is always found correctly, change *file\$* at line 60

of QCD/Gen to the pathname of the library, for example:

```
60 file$="$Library.QComDec"
```

If you make the library the current directory when QCD/Gen is run, it will save QCD into the library correctly.

On your disks you must leave at least 25k or so for files to be decompacted into.

And when compacting files, if the compacted percentage is greater than 100 (that is, larger than the original) decompact the file back as it is pointless to waste disk space like that.

When it is all typed in *QCD will throw up a menu and selection is made by cursor keys and Return or a quick key letter. See the text file on the disk for the controls.

Both compaction and decompaction of a file requests two filenames, the second of which may be made equal to the first by merely pressing Return. For compaction the first filename is the file to be compacted and the second is the destination file. For decompaction the opposite applies.

Decompacting a screen allows you to view a compacted screen and prompts for a filename and screen mode from 0 to 7. The Star command option is useful for finding out names of files unless you are organised enough to write things like that on disk labels. Quit just reverts to Basic.

Andy Nibbs

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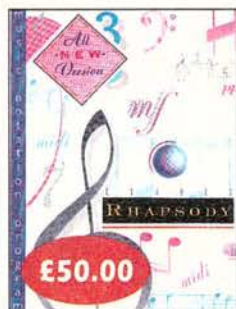
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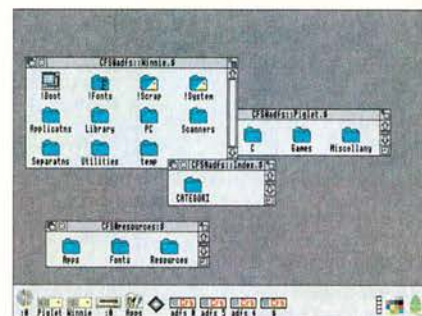


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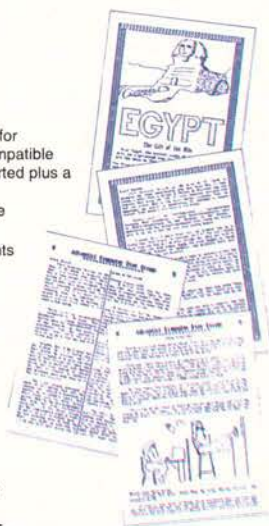
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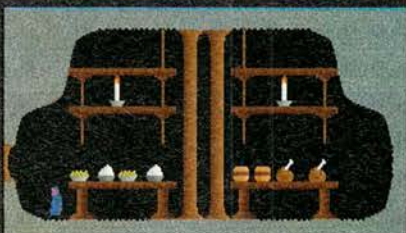
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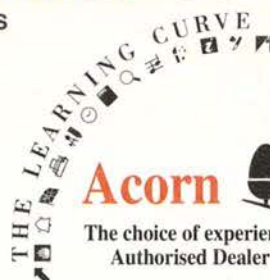
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The name's the thing

I HAVE a BBC Master 128 with twin 40/80 disk drives and it would be very useful if, when cataloguing a floppy disk, I could have its title displayed in colour on the screen, in contrast to the white display of file names.

However, although I have been able to obtain coloured disk titles – using Ctrl + a red function key – when issuing the *Title command on a school BBC B, this procedure will not

work on my Master and the titles remain white when the disk is catalogued.

A colleague suggested trying an OSLI command with a VDU statement, but this doesn't work either and gives a Bad program error report.

None of my manuals offers a solution and I would be grateful if you could help. Also, is it possible to have titles on all four drives in colour or only

on disks catalogued from drive 0?

On the printer side I have an Epson LX86 but am considering upgrading to a Hewlett-Packard DeskJet 500. Would I be able to run this from my Master if I use the HP Epson-emulation cartridge with it? Would I need special connecting cables?

One of my main uses of my printer is for music printing and I am currently using the Mid-Sussex music processor and the Hybrid Music Publisher. I wonder if the DeskJet would be able to cope with the graphics involved in printing music.

I tried my system out on a borrowed Canon BubbleJet and it refused to print the stave lines despite lots of fiddling with dip-switches.

I also have a Hybrid Music 5000 with the 4000 keyboard and 3000 expander. There have been few letters in the magazine about what people are producing on their Music 5000s. Has the advent of the 32-bit machines meant that not many people are using the Hybrid products?

If I upgrade to an A5000 will Maestro, Rhapsody or EMR give me what I want – the excellence of the Music 5000, 4000, 3000 plus the facility to an automatic full-score/parts print-out usable by live musicians. Or will I have to buy one of those dreaded PCs? – David Norrish, Brunei, Borneo.

● The Master intercepts any attempt to put control codes into a disk title using the *Title command and using the OSLI command won't make any difference – though I'm curious as to where the Bad program error is coming from.

In fact the only way to do it on the Master is to use a disk editor. Change the title to something like:

*TITLE "XDisk Title"

then look at sector 0/0 with the disk editor, replace the X with a code such as &82 (130) which will turn any text following to green, in Mode 7. The drive used to catalogue the disk is irrelevant because it's the disk that contains the data not the drive.

If a printer has Epson-emulation you treat it like an Epson and it will certainly print graphics. But you would need a special cable as the DeskJet 500 has an unusual connector at the printer end – your problem with the BubbleJet sounds like a hardware hitch.

The music products for the 32-bit machines don't match the Hybrid

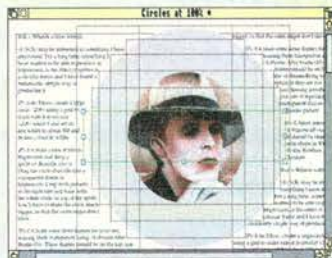
Wheels within wheels



● The sprite is loaded into a frame



● The white (grey for show) circle is loaded into a transparent frame over the picture



● Small, transparent and repelling frames are placed over text frames



● The sprite and draw frames are put to the back

YOU may be interested in something that I have just discovered.

For a long time, something I have wanted to be able to produce in Impression, is the effect of sprites in a circular frame and I have found a remarkably simple way of producing it.

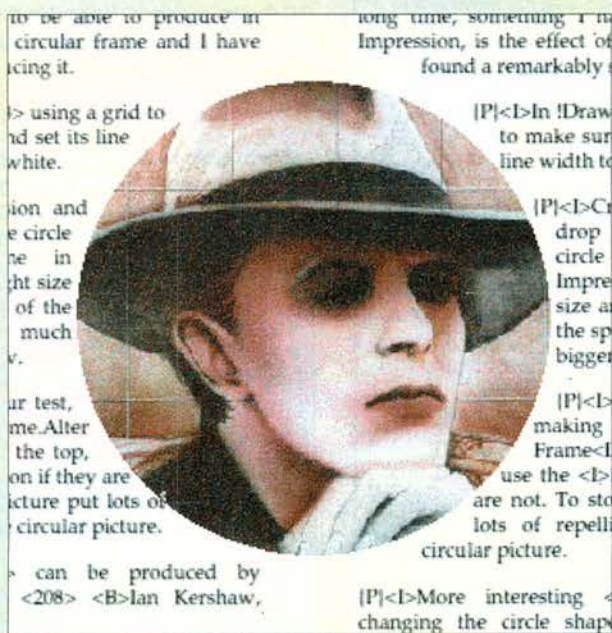
In !Draw, create a large circle – using a grid to make sure it is circular – select it and set its line width to about 100 and its line colour to white.

Create a new frame in Impression and drop a sprite or drawfile into it. Drag the circle drawfile into a transparent frame in Impression. Crop both pictures to the right size and scale with the white circle on top of the sprite. You'll have to make the circle much bigger, so that the outer edges don't show.

To stop the text flowing into the picture put lots of repelling but transparent frames over the circular picture.

More interesting frames can be produced by changing the circle shape in !Draw. – Ian Kershaw, Poynton, Cheshire.

PRIZE
LETTER



● The finished layout

system unless you're connected to external MIDI devices. On the other hand it's much easier to enter music in proper notation format and then print it out.

If you bought a PC you'd have to buy a lot of additional hardware to match an Acorn 32-bit machine even in its unexpanded state.

Menon help

WITH regard to G.I. Crowe's requirement to restrict access to Menon, can I suggest the following:

Change the access privilege of PathData to remove owner write access. Items can be added or removed from the Menon menu but any attempt to save the configuration will result in the error message Not open for update.

I appreciate the solution in not fool-proof, but if users don't know where Menon is in the filing system, or don't understand the Archimedes filing facilities, they will not be able to change it.

PathData can be found by double-clicking on the Menon application while holding down the Shift key. This technique can be used on any software that does not have additional supervisor-type facilities and I hope it is of assistance. – G.C. Toland, Newport, Shropshire.

Club A5000

I HAVE spent several weeks typing a number of my own Basic programs into my A5000 for the collection, sorting and presentation of large batches of data for various club activities.

The programs have been saved with their corresponding data files in the \$ directory of the hard drive and the \$ directory of a named floppy disk. The floppy is mounted manually and the programs loaded into Basic, where they run perfectly and much faster.

However, when I load manually from the hard disk I get the message:

Type mismatch: String needed

Ah well, at least I have some extra backup copies.

Reading through my magazines, I came across an article written by Steve Turnbull about creating your own applications and full of enthusiasm set out to do just that.

Stage one, create application directory and application sprite for one particular program. Success, it works. Stage two, add program and data file to application directory. Use !Boot file to

set the application and data files to Obey\$Dir, add !Run file then double-click to run. Calamity. The program stops with the same infuriating error message.

Stage three, fix program by adding its own error trap. Stage four, re-run the application. Curses, the same error message – but at least I know where. The program runs, opens its data file and stops at the input line for data. Why?

Show Obey\$Dir reveals that the application is there and:

```
*cat <Obey$Dir>
```

shows the contents to be in order. Having tried this several times and scratched balding head which by now is getting balder, I start to compose this letter.

Food for thought. What happens if I first load the required program manually from the floppy disk and then quit back to the Wimp environment?

Surprise, surprise double-clicking the plain program file on hard disk and it runs, as does the applications and the plain program file on the floppy. Help please!

I trust you will be able to enlighten me as to why this happens and correct the error I must have in either the !Run or !Boot files when using data files in an application. – D. Griffiths, Marlow, Bucks.

● This is pretty tricky and is difficult to analyse without the programs themselves. What you've described is a routine opening a file and attempting to read a string, but what it's finding in the file isn't a string, hence the error.

So the program is trying to read the wrong file, trying to read from the wrong position in the right file or both.

Check first that it's the right file that is being read from and if it is ensure that it's being read in the right place.

If you're absolutely sure that the file is right your program must be wrong because Basic V uses the same file format as all the previous versions.

Arc in Cornwall

I HAVE just read your September issue and was particularly interested in Mrs Bishop's letter regarding Acorn computers in Cornwall.

The lack of Acorn information within the county is partly due to the

All programs printed in this magazine are exact reproductions of listings taken from the running programs which have been thoroughly tested.

However, on the rare occasions when mistakes occur, corrections are published as a matter of urgency.

Should you encounter error messages when you type in the program, they will almost certainly be the result of your own typing mistakes.

Unfortunately we cannot answer personal programming queries concerning mistakes. Of course letters about suggested errors will be investigated without delay, but any replies found necessary will only appear in these pages

almost total absence of such equipment in the Authority's schools.

However, the school in which I work uses Archimedes and our new computer facility based on the latest A3020 linked by Nexus networking is about to be installed.

I have owned my own machine and currently have my original – but much expanded – A310 with a brand new A4 portable plus a considerable range of software.

I would be delighted to hear from Mrs Bishop and any other current or potential Archimedes users in the area seeking help or advice over purchases or use of software. Perhaps it is time to restart the local Computer Club which we ran in the early years of the BBC Micro.

I have always found it helpful to talk to other users as so many little problems tend to be resolved in that way. – D. Hillage, Boskye, Chy-an-Hall, Gulval, Penzance TR18 3LZ.

Communication

IN reference to S. Connell's letter in the October issue, Kermit is a communications protocol that allows data to be transferred between any two machines as long as they follow the same protocol.

As the data is treated as pure binary, it means that programs/data for one computer could be stored on another and, after retrieval, would be perfectly usable.

I received Kermit v1.42 from the BBC's Telesoftware service on Teletext which transmitted both the program (in the form of a sideways ram image) and the operating manual. Although I no longer have the program, I do still have the manual of disk.

Obviously the previous owner of Mr. Connell's machine took the trouble to blow the sideways ram image into a rom. – Peter Hopkins, Peterborough.

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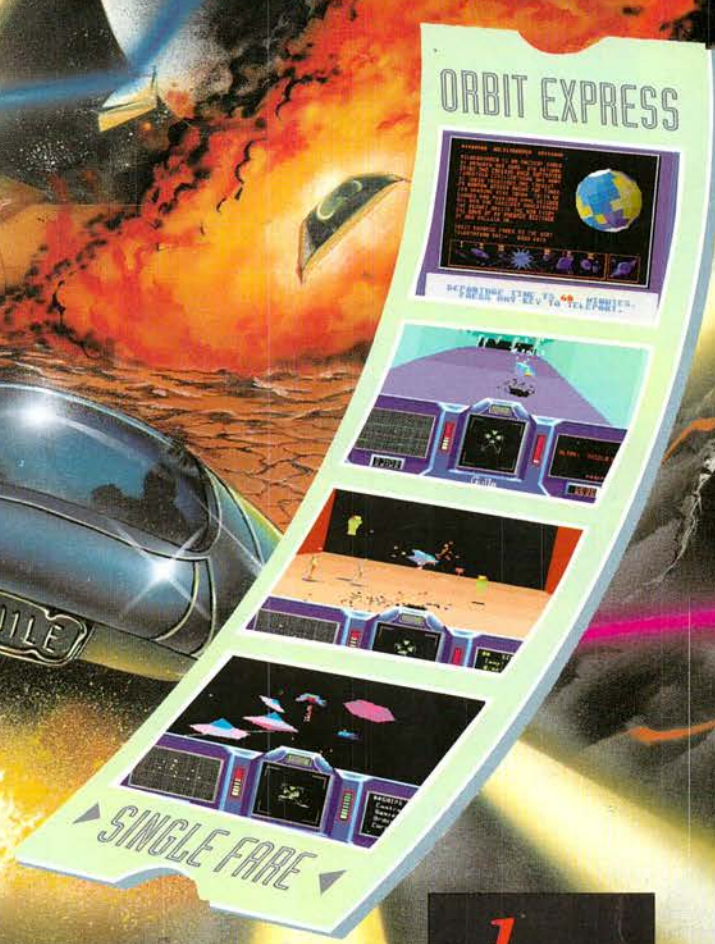
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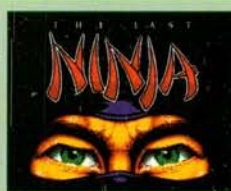
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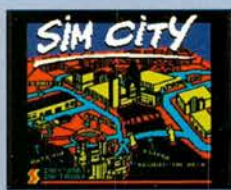
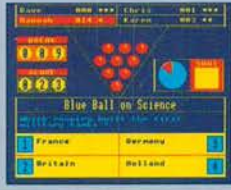
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